

SPECIAL ISSUE: 5 Great New Macs

MACWORLD

THE MACINTOSH® MAGAZINE

December 1992 \$3.95 Canada \$4.95

Hot New PowerBooks

- ◆ LIGHTER, FASTER, AFFORDABLE
- ◆ BUILT-IN VIDEO
- ◆ REVOLUTIONARY DOCKING STATIONS

PowerBook Duo 230



Duo Dock with PowerBook Duo 210



Mac IIvx



PowerBook 145

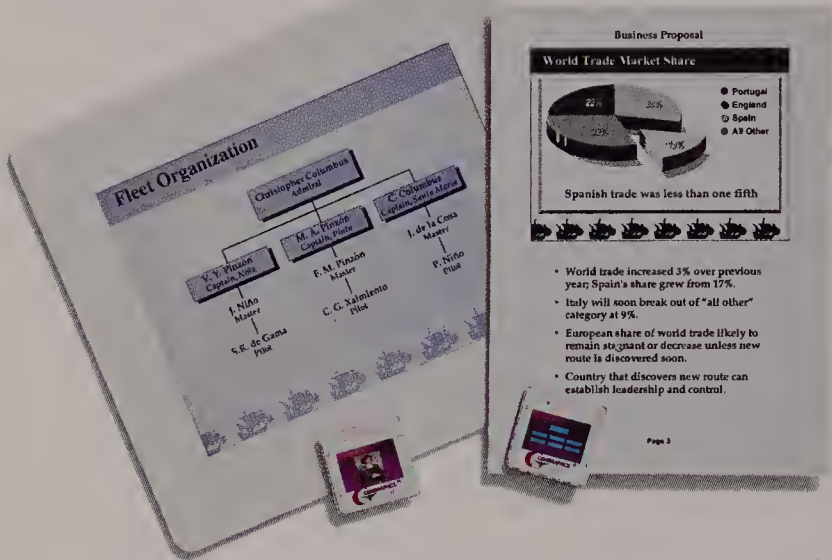


PowerBook 180

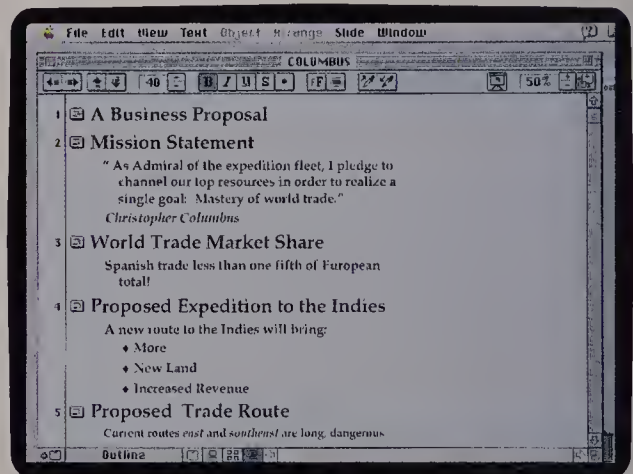
New PowerPoint 3.0 tools make power



The toolbar. A powerful way to save time. Because now the most commonly used features are just a point and a click away.



Output you have to see to believe. Creating sharp-looking overheads, 35mm slides or speaker's notes has never been easier.



WYSIWYG Outline view lets you create and work with the content of your entire presentation as an outline. Plus, full text formatting capabilities let you see and edit fonts, sizes and styles right in Outline view.



Presenting the Shape tool. Now making diagrams is quick and easy. There's a palette of 24 adjustable shapes to choose from.



Get graphical. 84 different graph styles to pick from, including 3-D graphs with rotation and perspective control.

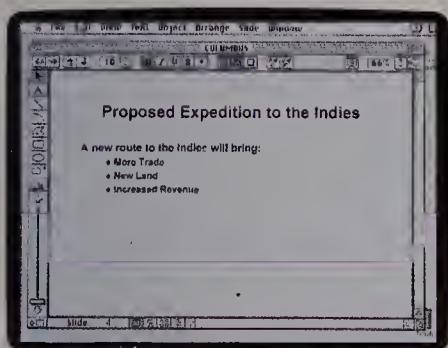
Now you have everything you need to make all your presentations as powerful as your ideas.

And that includes cross-platform support. Which means you can share

files with PowerPoint 3.0 for Windows™ directly. No translation necessary.

But don't wait too long. Users of the PowerPoint program can only take advantage of this special \$99

Because powerful presentations.



With Anytime Templates, you can apply one of 160 professionally designed templates or use any other presentation as a template. Anytime.

For polished, professional electronic presentations use automatic build slides with flying bullets, transition effects, on-screen notation, sound and video.



(800)426-9400



This special \$99 version upgrade offer is only good until January 31, 1993, for users of the PowerPoint program*. Users of competitive products can upgrade for \$129.†



For your copy of the Microsoft® PowerPoint® presentation graphics program version 3.0 upgrade, visit your nearest reseller or pick up the phone and push these buttons: (800) 426-9400.

The PowerPoint presentation graphics program fully supports QuickTime™ and System 7™, and is part of a complete line of powerful Microsoft applications for the Macintosh®.

version upgrade offer until January 31, 1993*. Users of competitive products, including Aldus® Persuasion®, can upgrade right now for only \$129.†

So hurry up and get your hands

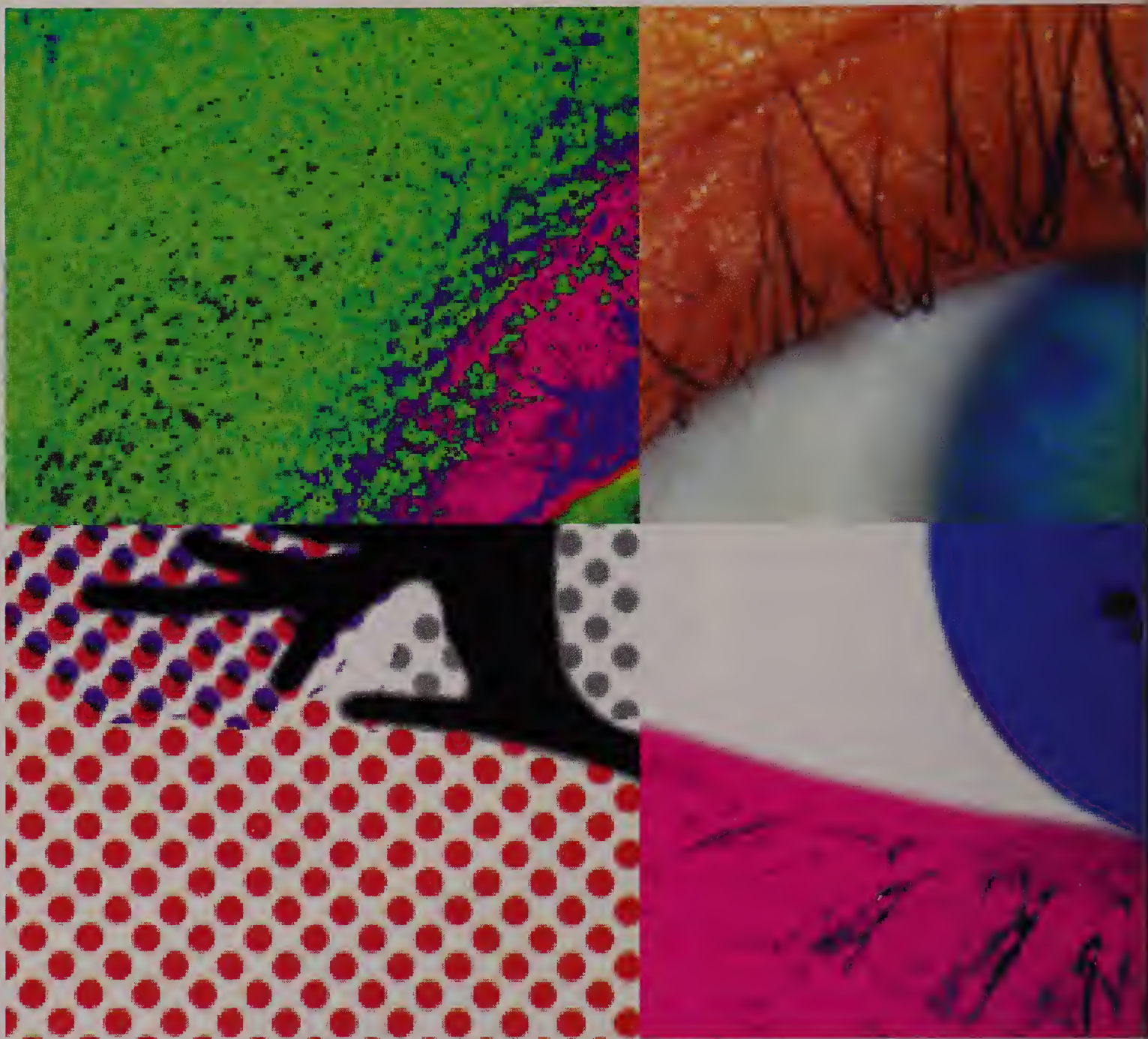
on PowerPoint 3.0 for the Mac®. And put yourself in a position of power.

Microsoft®
Making it easier

Competitive upgrade. Proof of purchase required: title page of user's manual or Disk 1 of the program. Reseller prices may vary. Plus applicable sales tax and freight if ordering directly from Microsoft. In Canada, call (206) 936-8661. For information only: In Canada, call (800) 563-9048. Microsoft and PowerPoint are registered trademarks and Windows is a trademark of the Microsoft Corporation. Aldus and Persuasion are registered trademarks of Cricket Software. Symantec MORE is a trademark of Symantec Corp. Installation of PowerPoint version 3.0 for the Macintosh requires System 7 to run.



Made for Macs.
We've designed our new
FG series of monitors
specifically for the
Macintosh®. We also
make many other
Mac compatible
peripherals,
from CD-ROM
readers to a
full line of
printers.



NEC and Radius have designed a display

Presenting NEC's 15", 17" and 21" MultiSync® FG™ display systems*—a colorful combination of our award-winning monitor technology and a display interface card designed specially for NEC FG monitors by Radius™.



Multiple viewing modes give you more flexibility than you've ever had before and allow you to use all your applications more effectively.

For instance, condensed modes let you increase resolution and desktop size. So you can display more on-screen information and do everything from putting two documents side by side, for easy cutting and pasting, to displaying more cells in your spread sheets. There's also a 72 DPI mode which gives you a WYSIWYG view of your final output. While expanded modes let you enlarge images and get a closer look at your work.



MacUser Aug 1992
MultiSync 4FG



MultiSync 3FGx



MultiSync 6FG



Computers and Communications

*15", 17" and 21" CRTs yield 13.8", 15.6" and 19.7" active display areas
MultiSync is a registered trademark and MacFG, FG, FullScan, AccuColor and FastFacts are trademarks of NEC Technologies, Inc. All other trademarks are the property of their respective owners. © 1992 NEC Technologies, Inc.



According to the experts, the first fruits of the digital age manipulation revolution will bear are the electronic composition of text and full motion video, images superimposition


system that will make you open wide and say ahhh.

But the best part is, as you change applications, you can switch to any of these modes on the fly. Right from the control panel. You don't even have to restart the computer.

Our MultiSync FG monitors also feature FullScan™ capability, for edge-to-edge images. And our exclusive AccuColor™ Control System lets you adjust your on-screen color to match your printed output. The MacFG™ Board is NuBus™ compatible and includes QuickDraw™ acceleration. And it's available in two versions. The MacFG 8X supports 8-bit color and the MacFG 24X supports 24-bit color. So take a look at these display systems. We're sure you'll see things our way.

For more information, call 1-800-NEC-INFO. (In Canada, 1-800-343-4418.) Or for information via fax, call NEC FastFacts™ at 1-800-366-0476, request #62234.

Free CD-ROM reader
when you buy a
MultiSync FG Display
Solution between 6/1/92
and 12/31/92.
Call 1-800-366-0476,
request #2222 for
promotion details
via fax.

Because  is the way you want to go.

NEC

Circle 68 on reader service card.

Contents

MACWORLD THE MACINTOSH® MAGAZINE DECEMBER 1992

SPECIAL ISSUE

MW Apple's Dynamic Duo..... 192

LAB

BY JIM HEID The PowerBook Duos merge a notebook computer's portability with a desktop Mac's versatility.

MW New PowerBooks: The 145, 160, and 180..... 200

LAB

BY JAMES A. MARTIN The latest crop of notebook Macs corrects the old PowerBooks' only glaring deficiencies—lack of monitor support, gray scale, and speed.

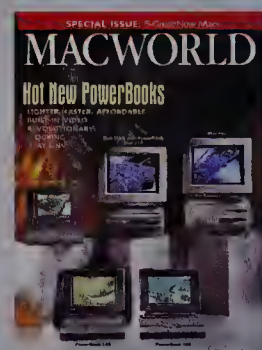
MW The Macintosh IIfx..... 206

LAB

BY CHARLES SEITER Is Apple's new IIfx—a higher-performance version of the consumer-oriented Performa 600—the best Mac value yet?

Looking down the Line..... 208

BY CHERYL ENGLAND With so many changes in the Mac lineup, how do you keep track of product, performance, and price? Check our quick analysis of each Macintosh model.



On the Cover

Rolling out no less than five PowerBooks and a desktop champion—the IIfx—Apple escalates its new-product launch begun last month with the Performa line. (PHOTO BY PAUL FRANZ-MOORE; SCREEN IMAGES BY JIM LUDTKE.)



FEATURES

Hard Drive Rx..... 212

BY ROBERT C. ECKHARDT Has your drive gone comatose at the worst possible time? Our practical guide to diagnosing problems and administering first aid will help you resurrect that ailing drive and recover your data.

MW Tape Backup Bounty..... 218

LAB

BY TOM NEGRINO In today's crowded tape-drive market, there are more similarities than differences. We help you compare the criteria that count.

The 1992 Macintosh Game Hall of Fame..... 226

BY STEVEN LEVY Once again our Curator and Official Game Guru honors the year's top achievers.

Your Computer Revealed: Expanding the System..... 232

BY LON POOLE In this last of a three-part series, we show how common peripherals—such as hard drives, printers, and networks—enable the Mac to expand its capabilities.



Page 212

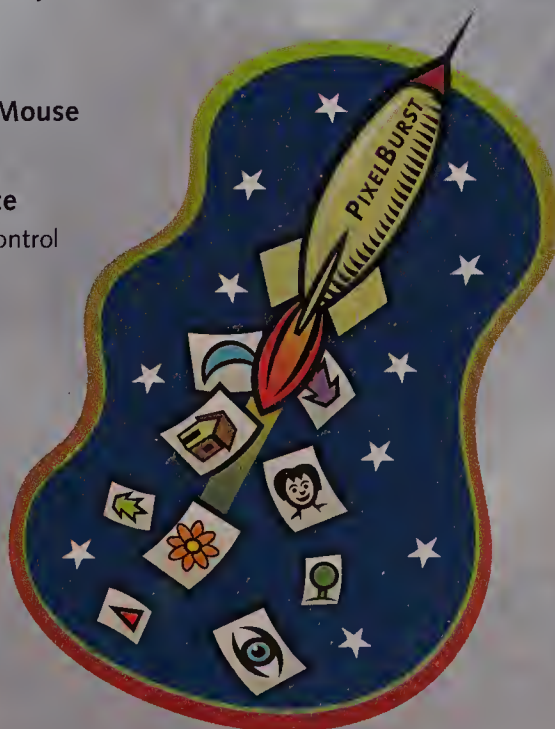
REVIEWS

- 240 Cachet 1.0**
Color image editor
- 242 CompuServe Information Manager 2.0.1**
Graphical interface for CompuServe
- 244 Omnis 7 1.1**
Database-development system
- 246 Kodak Renaissance**
Page-design and -layout software
- 248 PowerPort/Gold**
14,400-bps data/fax modem for PowerBook
- 250 AutoCAD Release 11**
Architectural CAD software
- 252 JobTracker 2.02**
Publication-management software
- 263 Grade Machine 5.0; Making the Grade 2.0**
Grade-book programs
- 264 EtherPrint; EtherPrint Plus; and Ether Write**
Network connectivity
- 266 MacBreadboard 1.1**
Digital integrated-circuit trainer
- 266 Power Menus 1.0**
Apple menu enhancer
- 268 Expert Astronomer**
Astronomy software
- 268 Simulink 1.2**
Math simulation software
- 270 The Castle of Dr. Brain**
Puzzle collection
- 270 Headline Harry and the Great Paper Race**
Educational game
- 272 PersonalFont**
Personalized handwriting font
- 272 Interactive Physics II 1.0**
Motion simulation software
- 274 PowerKey 2.0**
Surge-protected automated power strip
- 274 Sequencher 2.0**
Molecular-biology software



Page 218

- 276 The Diet Balancer 1.0; Nutri-Calc Plus 1.2**
Nutrition-analysis software
- 276 SnapBack 1.0**
Networked backup software
- 278 Go Master 5.0**
Board game
- 278 TechWorks NetUtilities**
Network-support utilities
- 280 Warlords**
Strategy game
- 280 Office Manager 2.1**
Contact and project management
- 282 UpDiff 1.0**
File-updating utility
- 282 Comic Strip Factory 1.6; Megatoons**
Cartoon software
- 284 Cordless SuperMouse**
Cordless mouse
- 284 The Mouse Yoke**
Flight simulator control hardware



Page 169

DEPARTMENTS

- 18 How to Contact Macworld**
- 23 MacBulletin**
- 27 State of the Mac**
BY ADRIAN MELLO
Are PowerBooks overtaking desktop Macs?
- 37 Letters**
- 47 Art Beat**
BY CATHY ABES
- 53 The Iconoclast**
BY STEVEN LEVY
The Finder's not what it used to be
- 67 Conspicuous Consumer**
BY DEBORAH BRANSCUM
Upgrades—are they worth it?
- 75 Updates**
- 145 Lab Notes**
BY MARK HURLOW
- 155 Verbatim**
Manny Menéndez, president of Deneba Software
- 169 News**
BY DAN LITTMAN AND TOM MORAN
- 287 The Desktop Critic**
BY DAVID POGUE
Santa's bag of high-tech goodies
- 291 New Products**
- 297 How To/Quick Tips**
BY LON POOLE
- 305 How To/Getting Started**
BY JIM HEID
Downloading freeware and shareware
- 311 How To/Insights**
BY PHILIP STEIN
Lotus 1-2-3
- 313 Where to Buy**
- 396 Best-Sellers**

AnthroCart®

**NEW LOWER
PRICES!**



The Original AnthroCart...different widths, heights
and depths. Over 40 accessories to add.
Shelves adjustable in 1" increments.

Lifetime warranty. Made in U.S.A. 48 hours in house
order turn-around. Order direct and experience
Anthro's exceptional service.

Anthro. Look for our name.



Space saving.



Lots of choices.



Flexible.



Built tough.



3221 N.W. Yeon St. • Portland, OR 97210 • Fax: (503)241-1619

Free Catalog: **800-325-3841** 6:30 AM to 5:00 PM PST, M-F

GSA contract no. GS-00F-5040A. Available for OEM applications. Prices from \$159.
Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

MACWORLD

PRESIDENT AND CHIEF EXECUTIVE OFFICER/
MACWORLD COMMUNICATIONS, INC.

James E. Martin

PRESIDENT/CEO

Paul Boulé

A+ PUBLISHING DIVISION

PRESIDENT/COO

Dan Orum

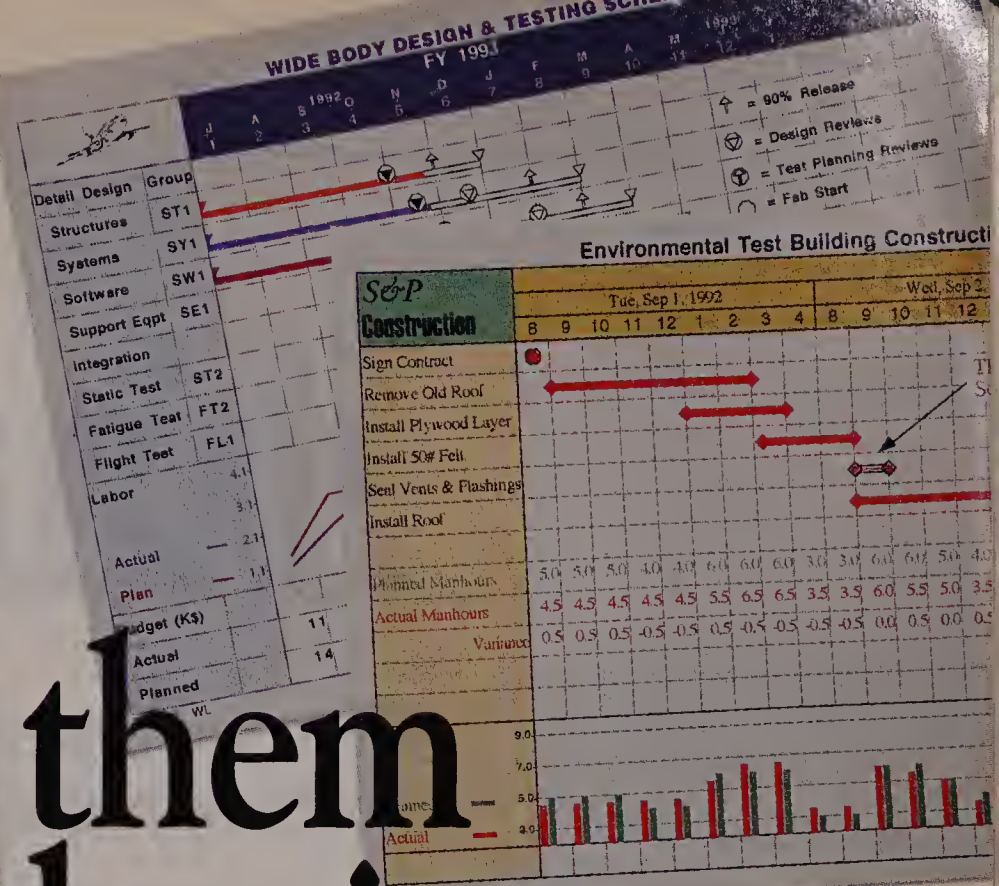
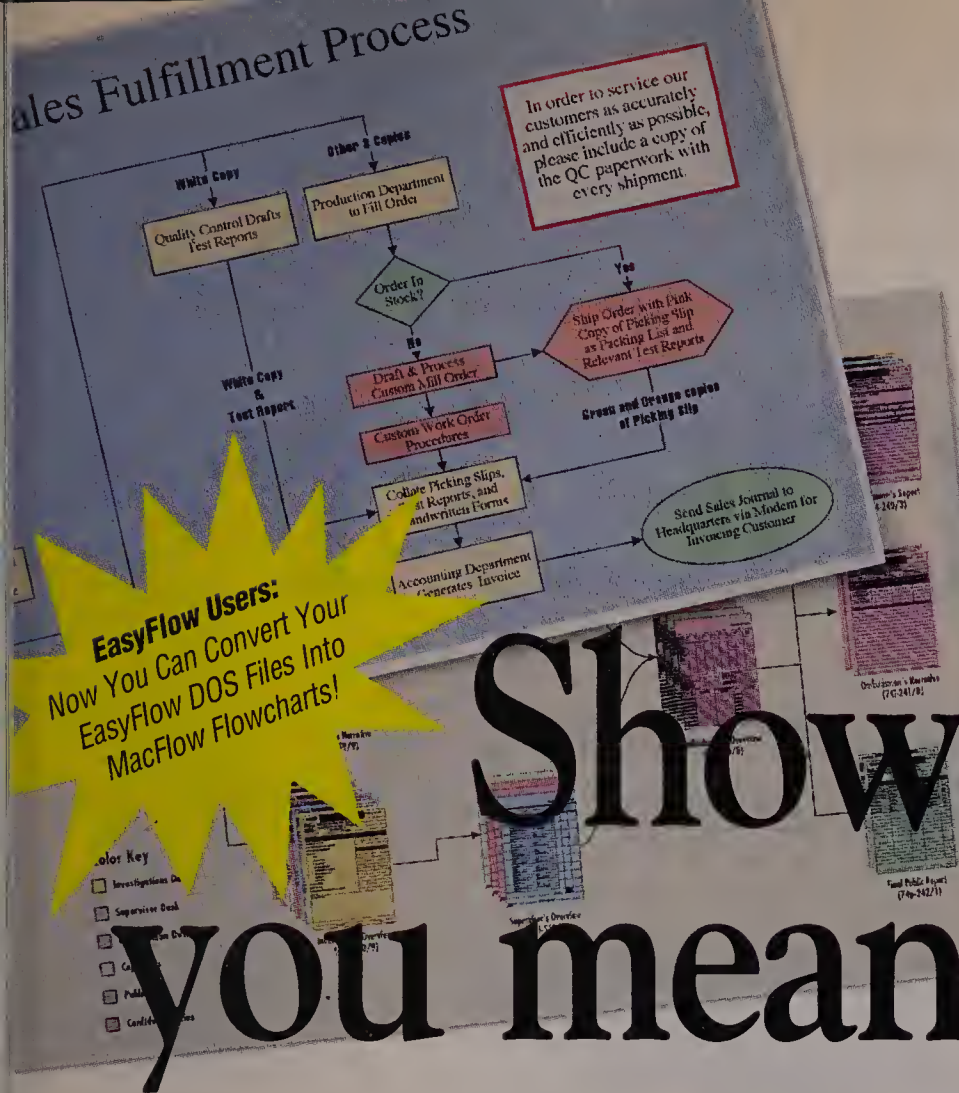
MACWORLD CD ROM PUBLISHING VENTURES

VICE PRESIDENT/BUSINESS DEVELOPMENT

Lindsay Davidson

MACWORLD is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 181 computer publications in 58 countries. Thirty million people read one or more International Data Group publications each month. International Data Group's publications include: **ARGENTINA'S** Computerworld Argentina, Infoworld Argentina; **ASIA'S** Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; **AUSTRALIA'S** Computerworld Australia, Australian PC World, Australian Macworld, Profit, Information Decisions, Reseller; **AUSTRIA'S** Computerwelt Oesterreich; **BRAZIL'S** DataNews, Mundo IBM, Mundo Unix, PC Mundo, Publish; **BULGARIA'S** Computerworld Bulgaria, Ediworld, PC World Express; **CANADA'S** Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; **CHILE'S** Computerworld, Informatica; **COLOMBIA'S** Computerworld Colombia; **CZECHOSLOVAKIA'S** Computerworld Czechoslovakia, PC World Czechoslovakia; **DENMARK'S** CAD/CAM WORLD, Communications World, Computerworld Danmark, Computerworld Focus, Computerworld Uddannelse, LAN World, LOTUS World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; **ECUADOR'S** PC World; **EGYPT'S** PC World Middle East; **FINLAND'S** Mikro PC, Tietoviikko, Tietoverkko; **FRANCE'S** Computer Direct, Distributique, Golden, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseaux International; **GERMANY'S** Computerwoche, Computerwoche Focus, Computerwoche Extra, Computerwoche Karriere, edv aspekte, Information Management, Lotus Welt, Macwelt, Netzwelt, PC Welt, PC Woche, Publish, Unit, Unix Welt; **GREECE'S** Infoworld, PC Games, PC World Greece; **HUNGARY'S** Computerworld SZT, Mikrovilag Magazin, PC World; **INDIA'S** Computers & Communications; **ISRAEL'S** Computerworld Israel, PC World Israel; **ITALY'S** Computerworld Italia, Macworld Italia, Networking Italia, PC World Italia; **JAPAN'S** Computerworld Japan, Macworld Japan, SunWorld Japan; **KENYA'S** East African Computer News; **KOREA'S** Computerworld Korea, Macworld Korea, PC World Korea; **MEXICO'S** Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; **THE NETHERLANDS'** Computer! Totaal, Computerworld Netherlands, LAN Magazine, MacWorld Magazine; **NEW ZEALAND'S** Computer Listings, Computerworld New Zealand, New Zealand PC World; **NIGERIA'S** PC World Africa; **NORWAY'S** Computerworld Norge, C/world, Lotusworld Norge, Macworld Norge, Network, PC World Ekspress, PC World Norge, PC World's Product Guide, Publish World, Student Guiden, Unix World, Windowsworld, IDG Direct Response; **PERU'S** PC World; **PEOPLE'S REPUBLIC OF CHINA'S** China Computerworld, PC World China, Electronics International, IDG HIGH TECH New Product World, Consumer Electronics New Product World; **PHILIPPINES'** Computerworld, PC World; **POLAND'S** Computerworld Poland; **ROMANIA'S** Infocub Magazine; **RUSSIA'S** Computerworld-Moscow, PC World, Networks; **SPAIN'S** Amiga World, Autoedicion, CIMWorld, Computerworld Espana, Comunicaciones World, Macworld Espana, PC World Espana, Publish; **SWEDEN'S** Affarsekonomi Management, Attack, CAD/CAM World, ComputerSweden, Corporate Computing, Digital Varden, Lokala Natverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatorn, PC World, Publishing & Design (CAP), Unix/Oppna system, Datalngenjoren, Maxi Data, Windows; **SWITZERLAND'S** Computerworld Schweiz, Macworld Schweiz, PC & Workstation; **TAIWAN'S** Computerworld Taiwan, PC World Taiwan; **THAILAND'S** Thai Computerworld; **TURKEY'S** Computerworld Monitor, Macworld Turkiye, PC World Turkiye; **UNITED KINGDOM'S** Lotus Magazine, Macworld; **UNITED STATES'** AmigaWorld, Cable in the Classroom, CIO, Computer Buying World, Computerworld, Digital News, DOS Resource Guide, Electronic News, Federal Computer Week, GamePro, inCider/A+, IDG Books, InfoWorld, LOTUS, Macworld, MPC World, Network World, NeXTWORLD, PC Games, PC Letter, PC World, Publish, RUN, SunWorld, SWATPro; **VENEZUELA'S** Computerworld Venezuela, MicroComputerworld Venezuela; **YUGOSLAVIA'S** Moj Mikro.

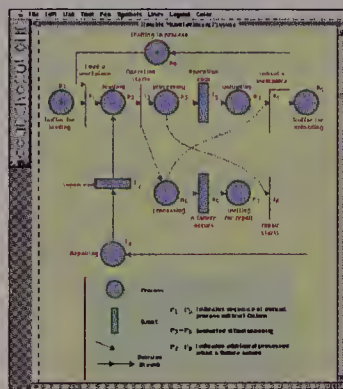
Sales Fulfillment Process



Show them you mean business.

MacFlow 3.7 Flowchart Design and Development

Lay it all out for them—the process, the procedures, the relationships. Business works best when everything is clear, and there is no better way to make things clear than a detailed flowchart.



The best way to create flowcharts is MacFlow—the highest-rated flowcharting program. Neither drawing programs nor pencil and paper can create flowcharts as easily as MacFlow. And no program is simpler to learn or use. Graphically organize complex processes, projects, and structures—minutes after opening the package.

Simply drag pre-drawn symbols onto a page and connect with curved or straight lines. Place text in symbols and on lines, as well as in freestanding notes. Change the chart as desired; lines stretch and stay attached to symbols. Even create stand-alone flowcharts that can be freely distributed to any Macintosh user (and any Windows user with an optional viewer). MacFlow is also System 7-savvy, letting you publish your charts and subscribe to text. Translate to and from text in ASCII and RTF formats as well as outlines created in Acta 7 and MORE.

MacFlow actually enhances your thought process because the interface is so simple and intuitive, nothing stands between your ideas and a presentation-quality flowchart. In fact, you'll find just creating flowcharts keeps your thoughts organized and helps you get a handle on any task.

Show them you're serious—get MacFlow today.

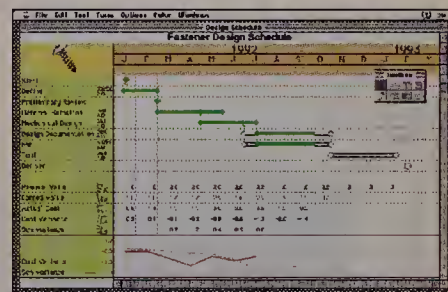


MacUser Magazine July '91

MacFlow, MacSchedule and other Mainstay products are available through retail and mail-order outlets worldwide. Ask for them at: MacConnection, Mac Zone, Mac's Place, MacWarehouse, CompUSA, Egghead, and other fine retailers and mail-order resellers. In Europe, Mainstay products are available at authorized Apple resellers. EasyFlow is a registered trademark of HavenTree Software Ltd.

MacSchedule 3.0 Project Planning and Tracking

Lay it all out for them—the plan, the people, the cost. Give them a path to follow and a way to track progress. Successful projects need a roadmap, and nothing can beat a simple yet comprehensive project schedule.



The best way to create quick, presentation-quality project schedules is MacSchedule. The Gantt-chart interface lets you create schedules, with integrated financial data, minutes after you open the application—unlike complex project management software. And MacSchedule is as easy to learn as it is to use.

MacSchedule automatically creates and manages a project calendar. Just enter task names, then indicate timing with a click and drag of the mouse. Status tracking is also easy—just click on a task bar to show progress.

MacSchedule helps track a project from initial estimates to current status by automatically developing calendarized cost estimates and reporting cost and schedule variances in an Earned Value summary. MacSchedule is also System 7-savvy, letting you publish your schedules and data as well as subscribe to data from other

programs. Place schedules in documents for proposals and reports or print schedules as slides, overheads, or wallcharts.

With MacSchedule's graphic feedback, you can tell at a glance where your project is and where it's headed. It's the perfect tool for any manager.

Show them your plans for success—get MacSchedule today.



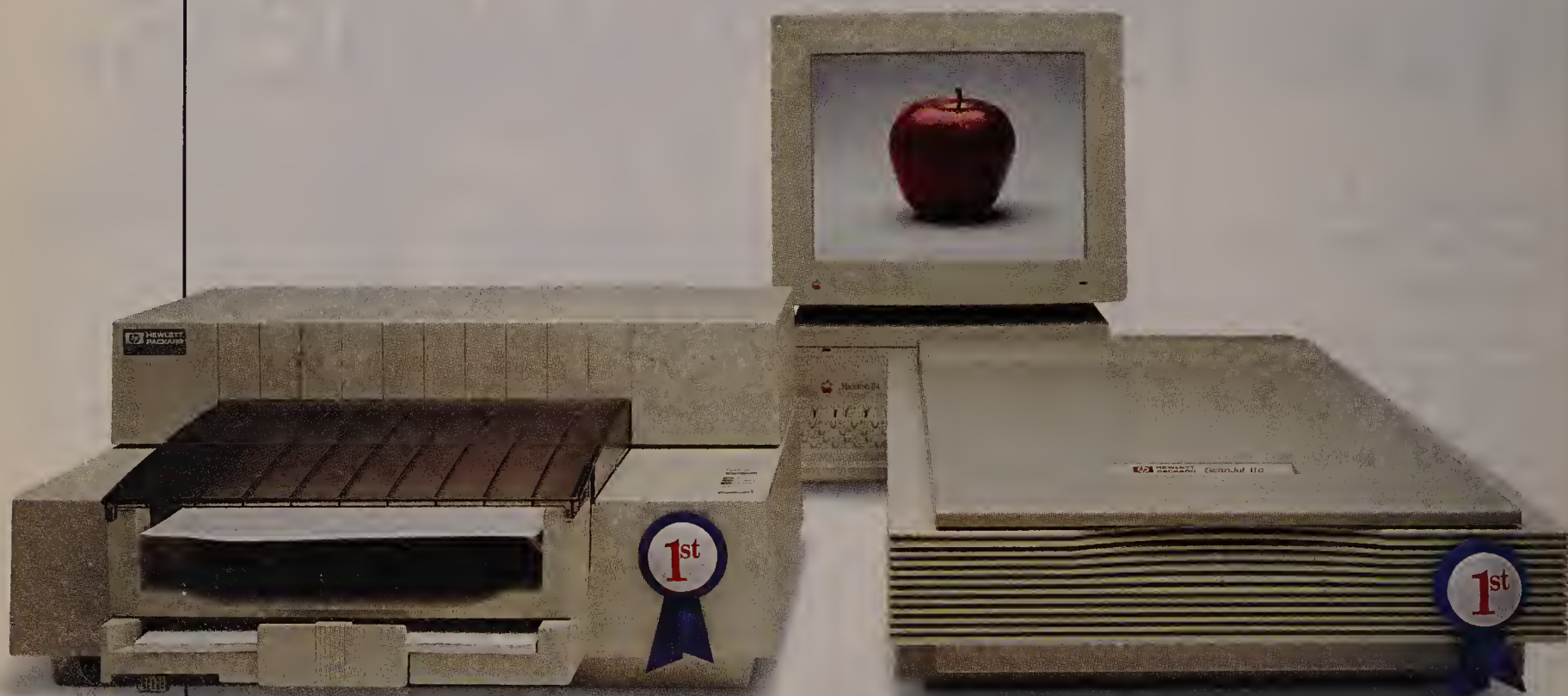
For a free demo disk and catalog, phone, write, or fax Mainstay today.

Mainstay

5311-B Derry Avenue, Agoura Hills, CA 91301 (818) 991-6540 (818) 991-4587 fax
71 rue des Atrebat, B-1040, Brussels, Belgium 322/733.97.91 322/732.32.46 fax

Fame.

HP wins first-place awards for
Mac-compatible products.



Fortune.

HP gives \$100 or \$50 rebates on
award-winning ScanJets and DeskWriters.



**HP's Mac-compatible scanners
and printers seem to run forever.
But our rebate program won't.**

Now through January 31, 1993,
you can enjoy the famous perfor-
mance of HP's products for the
Macintosh. And save a modest
fortune in the bargain.

We're giving \$50 rebates on the
enormously popular HP DeskWriter
printer, providing laser-quality
output at a dot-matrix price. \$50

on the HP DeskWriter C, so you
can add a splash of color. And \$50
off the already low price of the
HP ScanJet IIP grayscale scanner.

We're also offering a \$100 rebate on
the HP ScanJet IIC color scanner.
With its superior scanning capabil-
ities, it meets all your imaging and
text needs.

HP DeskWriters and ScanJets won
landslide victories in Macworld

magazine's World-Class Awards.*
Voted on by Macintosh enthusiasts
who subscribe to Macworld.

So call **1-800-35HPMAC**, Ext. 7037
for more details and the name of
your local authorized HP dealer.
You'll find that the price of fame
is very reasonable.



**HEWLETT
PACKARD**

SYSTEM 7 USERS

There's a new utility package that offers you eternal bliss



Introducing 7th Heaven

System 7 is good, but 7th Heaven Utilities makes it what it should be; fast, flexible, informative, and easy to use.

The 7th Heaven Utilities is a collection of seven separate applications and installers that allow you to customize System 7 the way you like it. Use 7th Heaven instead of memory and disk hungry alternatives to make your Macintosh as fast as it can be.

- **FinderExpress:** Increase file copy speeds up to 320%
- **Chameleon:** Ultimate Desktop patterns
- **Calendar:** Desktop calendar with graphics
- **VectorPlasma:** Low memory screen saver
- **FileMapper:** Open orphaned files
- **RedAlert:** Color icons for Alerts and Trash
- **Informant:** System diagnostic tool

\$99.95

100% Money-Back Guarantee

To order the 7th Heaven Utilities

1-800-645-2495

LOGICAL SOLUTIONS, INC.

2124 University Avenue • St. Paul, Minnesota 55114
(612) 659-2495 • (612) 659-2498 fax

The 7th Heaven Utilities is written and distributed by Logical Solutions, Inc. 7th Heaven and Logical Solutions are trademarks of Logical Solutions, Inc. Other product and company names are trademarks of their respective owners. ©1992 Logical Solutions, Inc. All rights reserved.

Circle 169 on reader service card

MACWORLD

EDITOR-IN-CHIEF

Adrian Mello

EDITORIAL

SENIOR EDITOR/DEPARTMENTS	Deborah Branscum
SENIOR EDITOR/FEATURES	Cheryl England
SENIOR EDITOR/REVIEWS	Carol Person
SENIOR ASSOCIATE EDITOR/FEATURES	James A. Martin
SENIOR ASSOCIATE EDITOR/FEATURES	Liza Weiman
ASSOCIATE EDITOR/DEPARTMENTS	Cathy E. Abes
ASSOCIATE EDITOR/FEATURES	Galen Gruman
ASSOCIATE EDITOR/LAB	Mark Hurlow
ASSOCIATE EDITORS/NEWS	Dan Littman, Tom Moran
ASSOCIATE EDITOR/FEATURES	Charles Piller
ASSISTANT EDITOR/REVIEWS	Marjorie Baer
ASSISTANT EDITOR/NEW PRODUCTS	Carolyn Bickford
ASSISTANT EDITOR/FEATURES	Suzanne Courteau
ASSISTANT EDITORS/LAB	Matthew Clark, Tim Warner
EDITORIAL ASSISTANT	Jim Feeley
ASSISTANT TO THE EDITOR-IN-CHIEF	Susan P. Grant-Marsh
CONTRIBUTING EDITORS	Robert C. Eckhardt, Erfert Fenton, Jim Heid, Steven Levy, Cary Lu, Joe Matazzoni, Deke McClelland, Tom Negrino, David Pogue, Lon Poole, Steve Roth, Charles Seiter, Suzanne Stefanac, Franklin N. Tessler, Bruce F. Webster
INTERNATIONAL EDITORS	Alan Jones, Australia, 011 61 2 439-5133; Marianne Fajstrup, Denmark, 011 45 36 44 28 00; Jean Cassagne, France, 011 33 1 49 04 79 00; Stephan Scherzer, Germany, 011 49 89 3 60860; Giulio Ferrari, Italy, 011 39 2 58 011660; Osamu Honma, Japan, 011 81 03 5276-0541; Shin Cho, Korea, 011 82 2 579-8031; Paul Molenaar, Netherlands, 011 31 23 354554; Bernhard Steen, Norway, 011 47 2 647 725; Alvaro Ibariez, Spain, 011 34 1 319 4014; Fredrick Landergren, Sweden, 011 46 8667-9180; Roger Bataillard, Switzerland, 011 41 1 55 1077; Cemal Balci, Turkey; Peter Worlock, United Kingdom, 011 4471 831-9252

COPY EDIT AND EDITORIAL PRODUCTION

MANAGING EDITOR	Charles Barrett
ASSISTANT MANAGING EDITORS	Luis A. Camus, Ruth Henrich
SENIOR COPY EDITOR	Katherine L. Ulrich
SENIOR PRODUCTION EDITOR	Jo Ann Villalobos
COPY EDITORS	Doreen J. Kan, Paul King, Felicity O'Meara
ASSISTANT PRODUCTION EDITOR	Lisa Brazieal

ART AND DESIGN

DESIGN DIRECTOR	Dennis McLeod
ART DIRECTOR	Joanne Hoffman
SENIOR DESIGNER	Leslie Barton
SENIOR DESIGNER/INFORMATIONAL GRAPHICS	Arne Hurty
ASSOCIATE ART DIRECTOR	Kent Tayenaka
ASSISTANT ART DIRECTOR	Sylvia Benvenuti
DESIGNER	Hae Yuon Kim
ASSOCIATE DESIGNER	Tim Johnson
DESIGN ASSOCIATES	Belinda Chlouber, Martha Katt

EDITORIAL ADMINISTRATION

EDITORIAL MANAGER	Jane Lagas
EDITORIAL ADMINISTRATIVE ASSISTANTS	Wendy Sharp, Lyn Taylor

PRESIDENT/CEO AND PUBLISHER, MACWORLD COMMUNICATIONS, INC.	James E. Martin
ASSISTANT TO THE PRESIDENT	Terri Edelman

FAST RELIEF.

Accelerators From Applied Engineering

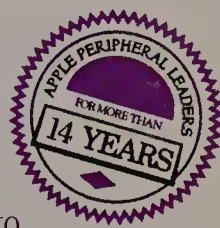


1-800-554-MACS Ext.213

If the price of accelerator cards has left you feeling a bit queasy, Applied Engineering has some quick relief. We've lowered our prices on our most popular accelerators so you can have the speed you want at a price that won't make you lose sleep.

Our TransWarp accelerators boost the Macintosh SE, Classic, LC, si and Mac II family to unrivaled levels of performance. We've designed them around the Motorola 68030 and 68040 processors and with clock speeds from 16 to 50 MHz, you will never again pay a premium for performance.

Since 1979, Applied Engineering has shipped over 1.3 million of the best performance enhancements for Apple and Macintosh. Call today for fast relief.



From **\$1265**

TransWarp CI

Make your Mac IIci faster than a IIx with Applied Engineering's TransWarp CI board.

From **\$513**

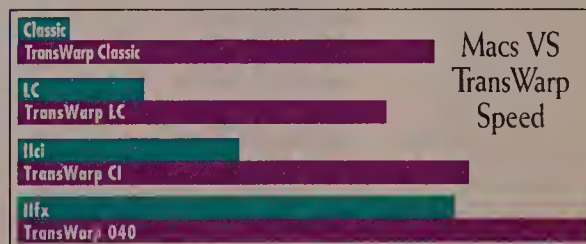
TransWarp LC

TransWarp LC uses a 32K fast static RAM cache together with a 68030 CPU to give you up to 3 times the speed of the standard Macintosh LC.

From **\$412**

TransWarp SE

TransWarp SE gives you up to 11 times the speed of the standard SE. Three different processor speeds—16, 25 and 40MHz—fit your needs and your budget.



APPLIED ENGINEERING®

*Apple's Oldest & Largest Developer
Since 1979*

©1992 Applied Engineering, 3210 Beltline Road, Dallas, TX 75234, (214) 241-6060, Fax (214) 484-1365. All product names are the trademarks of their respective holders.

Circle 167 on reader service card

**HOW TO BE
NEAT, PRECISE
AND ORGANIZED.
WITHOUT BECOMING
ONE OF THOSE
OBNOXIOUS
PEOPLE WHO ARE
NEAT, PRECISE
AND ORGANIZED.**



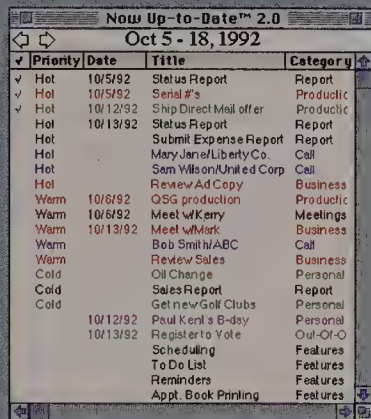
OR



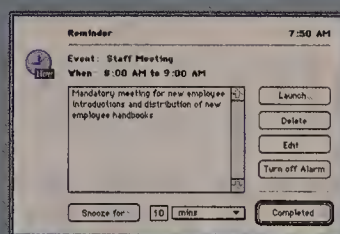


▲ Now Up-to-Date lets you schedule appointments and To Do's instantly — just click on the date you want and enter your information. Calendars can be viewed by day, multi-day, week, month or year, and can be customized in a myriad of fonts, styles and colors. You can even share schedules and events with your associates over a network or via modem.

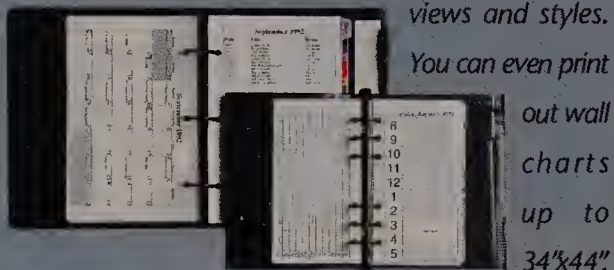
▼ The To Do list lets you schedule tasks for certain due dates or simply for whenever you get around to them. It also allows you to prioritize tasks and automatically forwards them on to the next day's To Do list until each task is completed.



► As well as displaying the current time in the menu bar, AlarmsClock automatically alerts you and your associates of upcoming meetings, To Do's and other events (including recurring events). Even when you're not running Now Up-to-Date.



▼ Calendars can be printed in all the major appointment book sizes and formats, each in a wide variety of views and styles. You can even print



STEP 1. LOAD NOW UP-TO-DATE 2.0, THE SOFTWARE THAT LETS YOU SCHEDULE EVENTS, SET REMINDERS, MANAGE TO DO LISTS, PRINT CALENDARS AND KEEP YOUR ASSOCIATES INFORMED, ALLOWING YOU TO BECOME AMAZINGLY ORGANIZED WITHOUT BECOMING OBNOXIOUS.

STEP 2. NOTICE HOW INCREDIBLY SIMPLE NOW UP-TO-DATE IS TO USE. TOTALLY CUSTOMIZABLE. 100% NON-FASCIST. LETS YOU DISPLAY CALENDARS AND EVENTS ANY WAY YOU WANT THEM. JUST CLICK ON A DATE, ENTER THE INFO, BANG, YOU'RE DONE. WANT TO CHANGE IT TO A DIFFERENT DATE? DRAG IT THERE. THAT'S IT. WANT IT TO SHOW UP ON THE FIRST THURSDAY OF EVERY MONTH UNTIL THE YEAR 2035? CLICK ONCE. YOU'VE GOT IT.

STEP 3. THINK TO YOURSELF, "WOW, CALENDAR SOFTWARE THAT'S ACTUALLY FASTER AND EASIER THAN THE OLD PEN AND APPOINTMENT BOOK APPROACH. AMAZING." HEY, WE LIKE THE WAY YOU THINK.

STEP 4. READ ALL THE DETAILS UP THERE IN THE

CAPTIONS THAT WE COULDN'T FIT DOWN HERE. THANKS.

STEP 5. IF YOU'RE ON A NETWORK, SHARE EVENTS ON YOUR CALENDAR WITH THE OTHER FOLKS ON YOUR NETWORK. THEY'LL NO DOUBT RETURN THE FAVOR, SHARING MEETING DATES AND WHATNOT WITH YOU. YOU SAY YOU'RE NOT ON A NETWORK? THAT'S OKAY, NOW UP-TO-DATE WORKS FINE ALL BY ITSELF. PLUS, YOU WON'T HAVE TO GO TO ALL THOSE OTHER PEOPLE'S BORING MEETINGS.

STEP 6. FLY TO ZIMBABWE. OKAY, NOW BRING UP YOUR CALENDAR ON YOUR POWERBOOK. GOOD. NOW COMPLETELY DISCOMBOBULATE THE THING. CHANGE IT ALL AROUND. GREAT. NOW CONNECT TO YOUR OFFICE VIA MODEM. PRESTO! ALL YOUR CALENDARS AUTOMATICALLY UPDATE THEMSELVES.

STEP 7. PICK UP NOW UP-TO-DATE 2.0. OR, FOR MORE INFO, GIVE US A CALL AT 1-800-237-3611.

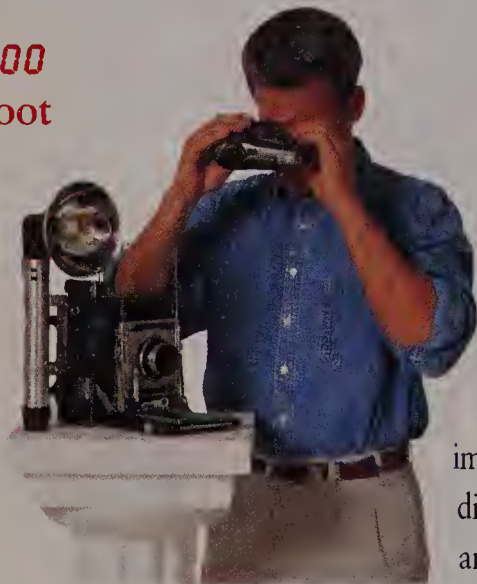
STEP 8. QUIT GOOFING OFF READING SOFTWARE ADS AND GET BACK TO WORK. YOU'VE GOT A LOT OF STUFF TO DO.

**Now
Software**

See us at Comdex Booth #1658

Join the New Imaging Revolution

10:00
Shoot



The new *Canon RC-570 Still Video Camera* records 25 electronic photos on a reusable 2-inch video floppy disk. No film or processing. No waiting. No waste. The 3X zoom lens and 450-line frame video resolution ensure superior image quality. Speed, portability, ease of use, and direct playback to a TV monitor make the RC-570 an ideal imaging tool.

10:12
Process

Canon digitizers allow still video images to be easily input to Macintosh®, PC, or NeXT™ computers. Integrate graphic files into applications like DTP, Databases, Multimedia and Presentations. You can even record from your computer back to video floppy with our *Electronic Still Presentation* systems.



10:45
Present



Use the RC-570 still video camera connected to a TV monitor to deliver impressive computer generated presentations directly from your video floppy disk. No computers. No slides. No projectors. No hassles. *That's Revolutionary!*

Learn more about this revolution, call 1-800-221-3333 ext. 313.



Canon

MACWORLD

ADVERTISING SALES

VICE PRESIDENT/DIRECTOR OF ADVERTISING SALES	Shannon Dolan (415/243-0505)
ASSOCIATE ADVERTISING DIRECTOR	William P. Peck (415/243-0505)
NO. CALIFORNIA (SAN JOSE, SOUTH)	Cherie La France (415/243-0505)
SALES ASSOCIATE	Tami Fielteau
NO. CALIFORNIA (WEST BAY), WASHINGTON, WYOMING, WESTERN CANADA	Regina T. Salaices (415/978-3155)
SALES ASSOCIATE	Edward Ramirez
NO. CALIFORNIA (EAST BAY, MARIN), IDAHO, MONTANA, OREGON	Suzanne Young Saluti (415/978-3262)
SALES ASSOCIATE	Debbie Burnett
SOUTHWEST REGIONAL MANAGER	Nancy Coy (714/250-1307)
SO. CALIFORNIA	Cathi T. Bledsoe, Jill Nightingale
SALES ASSOCIATE	Rachel Gillis
EASTERN/MIDWEST ADVERTISING MANAGER	Bill Thompson (201/967-1350)
MIDWEST/TEXAS	Lisa Ladle (708/827-4477)
SALES ASSOCIATE	Stacey Holman
MID-ATLANTIC/SOUTHEAST	Annette Bremer (201/587-0090)
SALES ASSOCIATE	Cathy Langhaar
NEW ENGLAND/FLORIDA	Joan Flynn (508/879-0700)
SALES ASSOCIATE	Susan Cardoza
MANAGER DIRECT RESPONSE SALES	Beverly Schneider (415/978-3138)
ACCOUNT MANAGERS DIRECT RESPONSE SALES	Wendi A. Smith (415/978-3117), Marsha Bowers (415/974-7413)
MACWORLD SHOPPER	Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/978-3257)
ASSISTANT TO THE DIRECTOR OF ADVERTISING SALES	Yuen Yeh (415/978-3258)

INTERNATIONAL SALES

SALES ASSOCIATE	Christine Wong
-----------------	----------------

MARKET RESEARCH

VICE PRESIDENT/RESEARCH	Gary L. Rocchio
RESEARCH COORDINATOR	Peter Summersgill

VICE PRESIDENT/MARKETING AND CIRCULATION	Lindsay Davidson
--	------------------

MARKETING

MARKETING MANAGER	Kimberlee Luedee
MARKETING EVENTS/MERCHANDISING MANAGER	Lisa Espinoza

CIRCULATION

SINGLE-COPY SALES DIRECTOR	George Clark
SUBSCRIPTION MANAGER	Lori Hitchcock
NEWSSTAND SALES MANAGER	Martin Garchar
SUBSCRIPTION PLANNING MANAGER	Elizabeth Jensen
SUBSCRIPTION MARKETING MANAGER	Susanna Camp
SUBSCRIPTION ASSISTANT	Kelvin Gee

PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING	Anne Foley
PRODUCTION MANAGER	Cynthia Mazzola
ADVERTISING BILLING COORDINATOR	So Fong Yip
ADVERTISING TRAFFIC COORDINATOR	Arlette Crosland
PRODUCTION ASSISTANT	Gary Silverstein

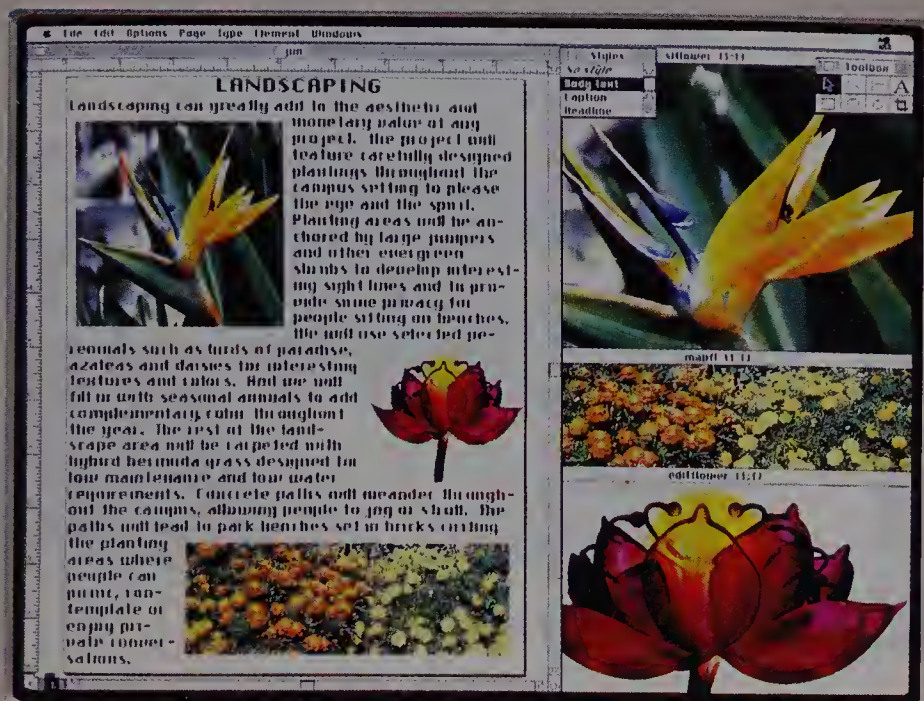
ADMINISTRATION

DIRECTOR OF FINANCE	Vicki Peilen
DIRECTOR OF HUMAN RESOURCES	Shelly Ginenthal
DIRECTOR OF INFORMATION SYSTEMS	Walter J. Clegg
CORPORATE BUSINESS MANAGER	Christina W. Spence
ACCOUNTING/OPERATIONS MANAGER	Pat Murphy
ACCOUNTING/FACILITIES MANAGER	Michelle Reyes
FINANCIAL ANALYST	Madeleine Buckingham



DIAMOND PRO 17

Mac Smart



MITSUBISHI
Diamond Pro 17

TWO-YEAR WARRANTY

TRINITRON® 17" CRT

VERY HIGH RESOLUTION

COLOR CALIBRATION SYSTEM

LOW EMISSION DESIGN

The Mitsubishi Diamond Pro® 17 is the ideal Macintosh® monitor for desktop publishing, graphic design, multimedia or image processing. It offers a large display with the most compact enclosure of any 17" flat-square or Trinitron monitor.

The high-resolution Diamond Pro 17 has a fine pitch (0.25 mm), vertically flat, square-cornered Trinitron CRT and features Mitsubishi's DigiCon™ digital convergence control and the Diamond Match Color Calibration System for color-critical applications. It's compatible* with Macintosh graphics standards at 640 x 480, Quadra® 832 x 624 and Apple® standard 72 DPI. And with its MPU-based, auto-scanning capability, the Diamond Pro 17 enables you to upgrade your system for use with third party color boards offered by companies such as RasterOps®, Radius™, SuperMac™ and E-Machines™.

For more information on the smart choice, call Mitsubishi Electronics at 1-800-843-2515. In Canada, call 1-800-387-9630 or in Mexico 91-800-83456.

 **MITSUBISHI**
INFORMATION SYSTEMS DIVISION

Circle 165 on reader service card

Mitsubishi Electronics America, Inc., Information Systems Division, 5665 Plaza Drive, Cypress, CA 90630.
Mitsubishi Electric Sales Canada, Inc., 4299 14th Avenue, Markham, Ontario L3R 0J2.

© 1992 Mitsubishi Electronics America, Inc. Trinitron is a registered trademark of Sony Corp. All other trademarks or registered trademarks are the property of their respective holders.

*Mac LC, Mac II or Quadra cable adapters available at no charge from your dealer.



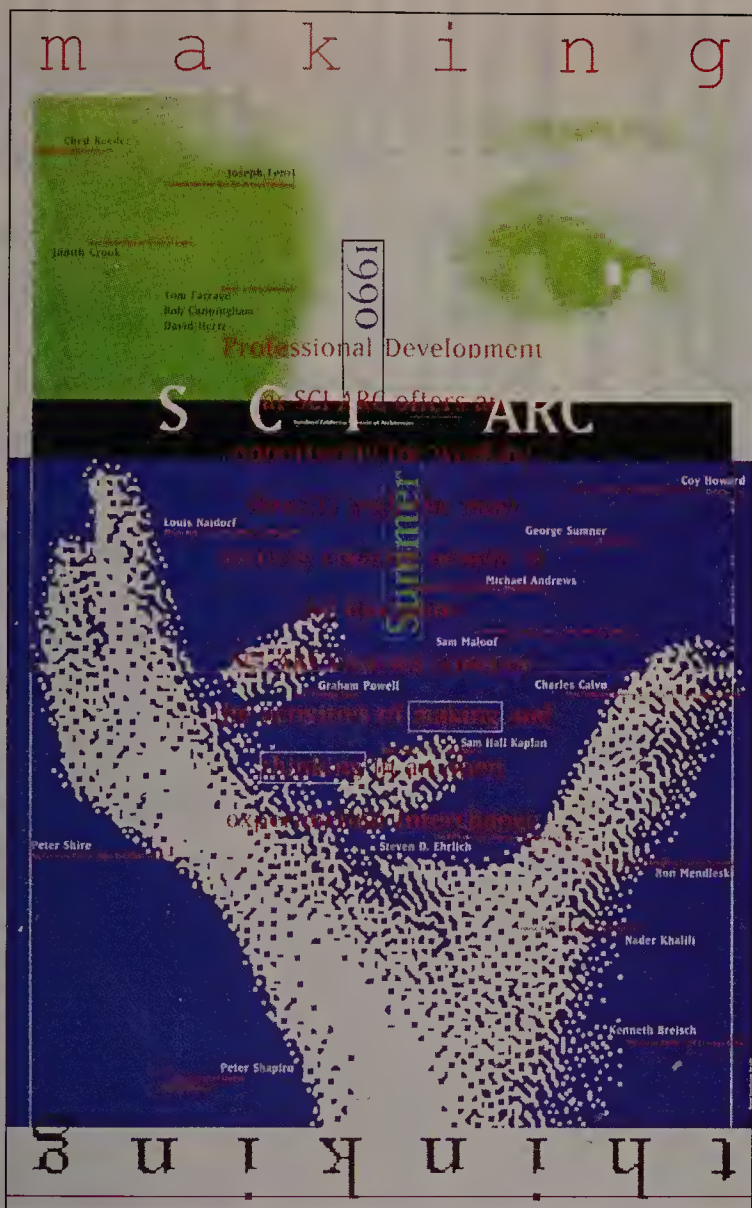
e"e

Centuries before
cosmetics,
the tribesmen of
New Guinea
had their own idea
of the mud pack.

DESIGNERS LOVE ALDUS PAGEMAKER.
YOU CAN SEE IT IN THEIR FACES.

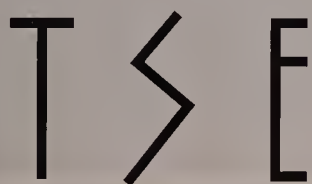
THE ONLY THING
PRIMITIVE *about*
AFRICAN
ART
is OUR UNDER-
STANDING *of it.*

(di-zin')



Experts ments

Designers of all types count on the power of Aldus® PageMaker®. Take our latest version — PageMaker 4.2 for the Macintosh. It now includes a



Control palette that lets you position, move and resize elements with numerical accuracy. Plus it has nudge buttons for precise adjustments.

You also get exact and accurate typographic track kerning. In fact, PageMaker now allows you to kern type to an impressive 0.01 of an em space.

Sean Adams, the Design Director of April Greiman, Inc. puts it this way: "We come from a metal type background, and our standards are exceedingly high. With PageMaker, we are able to achieve the aesthetic and technical precision we demand of type."

Call 1-800-685-4163 for a product brochure. And discover the type of quality you can expect from Aldus PageMaker.

COOPHIMMELBLAU

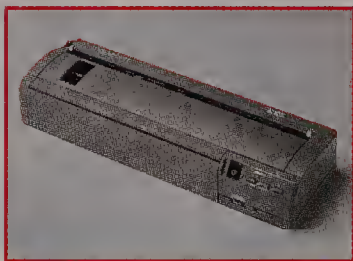
THE ART OF POWERFUL IDEAS™



PowerBook™ Portable Printing Solutions

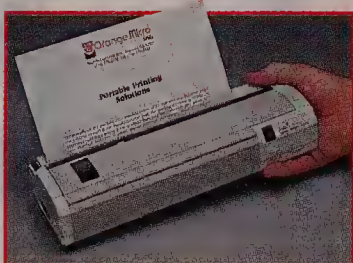


Do you wish your laser printer was as portable as your PowerBook? These three battery-operated laser-like printing solutions give you impressive hard copy from the most compact printers available. These printers are PowerBook-ready right out of the box.



The GCC WriteMove® II\$ Call

- Customized Mac hardware/software
- Fast print speed, at 360 x 360 DPI
- Print labels, envelopes and transparencies
- Background printing capability
- 11.7" (W) x 3.5" (D) x 2.0" (H); 2.5 lbs
- Includes Cable, ATM®, 21 Fonts, Battery



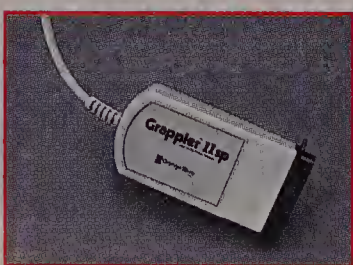
The Briefcase Miniature*\$499

- Citizen® PN48 with battery and Grappler®
- 360 DPI thermal printing on plain paper
- 2.5 lbs and fits in a briefcase with your PowerBook
- Handles single pages and envelopes
- 11.7" (W) x 3.5" (D) x 2.0" (H)



The Document Writer*\$549

- Kodak® Diconix 701 and Grappler®
- Built-in sheet feeder holds up to 30 pages
- Under 6 lbs with optional battery installed
- 300 DPI print quality
- 11.7" (W) x 7.68" (D) x 2.4" (H)



Connect any Non-Apple® Printer\$159

- The Grappler IIsp Mac® Printer Interface for PC printers are also available separately
- Supports hundreds of DOS printers, compatible with Hewlett Packard®, Canon® BubbleJet and Epson® LQ
- Includes spooling, networking software and cable

Order Today! Call Orange Micro to get the right portable printing solution for your PowerBook. 10 day money-back guarantee!

(714) 779-2784



"12 Years of Innovation and Excellence"
1400 N. Lakeview Ave., Anaheim, CA 92807

* Not recommended for PowerBook 100 due to slow printing speeds. Printing on other models varies, but generally about 2 minutes/full page of WYSIWYG output. Spooling software is included to provide continuous computer use during printing. Also, this printer is IBM compatible without modification.
© Orange Micro, Inc., 1992

Circle 33 on reader service card

MACWORLD

HOW TO CONTACT MACWORLD

SUBSCRIPTION SERVICES

For subscription service questions, call 800/234-1038, 800/288-6848, 303/447-9330, or 415/267-1743, or write Subscriber Services, P.O. Box 54529, Boulder, CO 80322-4529. For dealer inquiries, call 800/999-1170.

MACWORLD ON AMERICA ONLINE

Macworld subscribers can contact Macworld editors online via the Macworld area on America Online. The area features reviews, news, new-product announcements, version information, a database of products, and Macworld-sponsored message boards and conferences. Several of our editors log on regularly. To obtain a free America Online software kit, call 800/227-6364, extension 5254.

MACWORLD IN MICROFORM

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

BACK ISSUES OF MACWORLD

Write to: Back Issues of Macworld, c/o Snyder Newell, Inc., P.O. Box 7046, San Francisco, CA 94120-9727; \$6 per issue (\$20 overseas). Prepayment in U.S. funds necessary. Make checks and money orders payable to Macworld Magazine.

MACWORLD EDITORIAL

MAIL OR COURIER Macworld Communications, Editorial Dept., 5th floor, 501 Second St., San Francisco, CA 94107; 415/243-0505.

AppleLink: Macworld1

CompuServe: 70370, 702 Fax: 415/442-0766

LETTERS TO THE EDITOR All written comments, questions, and suggestions regarding any aspect of the magazine are read by our editor. We reserve the right to edit all submissions; letters must include your name and address. Direct all correspondence (by mail or electronically) to: Letters to the Editor.

QUESTIONS AND QUICK TIPS Direct questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to: Quick Tips, Lon Poole. Please include your name and address.

CONSUMER ADVOCATE Been burned? Really steamed? Direct your concerns (by mail or electronically) to: Conspicuous Consumer, Deborah Branscum.

NEW PRODUCTS AND UPDATES Direct press releases and product announcements (by mail or electronically) and shrink-wrapped software upgrades (by mail or courier) to: New Products Editor.

BUG REPORT AND TURKEY SHOOT Wanna squish 'em? Hearing gobblers? Mail in nominations with description of problem, copies of correspondence with vendor or telephone contact notes (if any); and your telephone number, mailing address, and T-shirt size. Remember: Turkeys are flaws in conception or design, while bugs are defects or flaws in execution.

REPRINTS AND PHOTOCOPY PERMISSION Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of \$1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 27 Congress St., Salem, MA 01970. Address requests for reprint orders and for permission to copy editorial for other purposes to: Reprints and Permissions, Editorial Dept.

WRITING FOR MACWORLD Please do not send us unsolicited manuscripts. If you're interested in writing for Macworld, send a stamped, self-addressed envelope along with a request for our writer's guidelines. Direct (by mail) to: Writer's Guidelines, Editorial Dept.

FOUNDER

David Bunnell

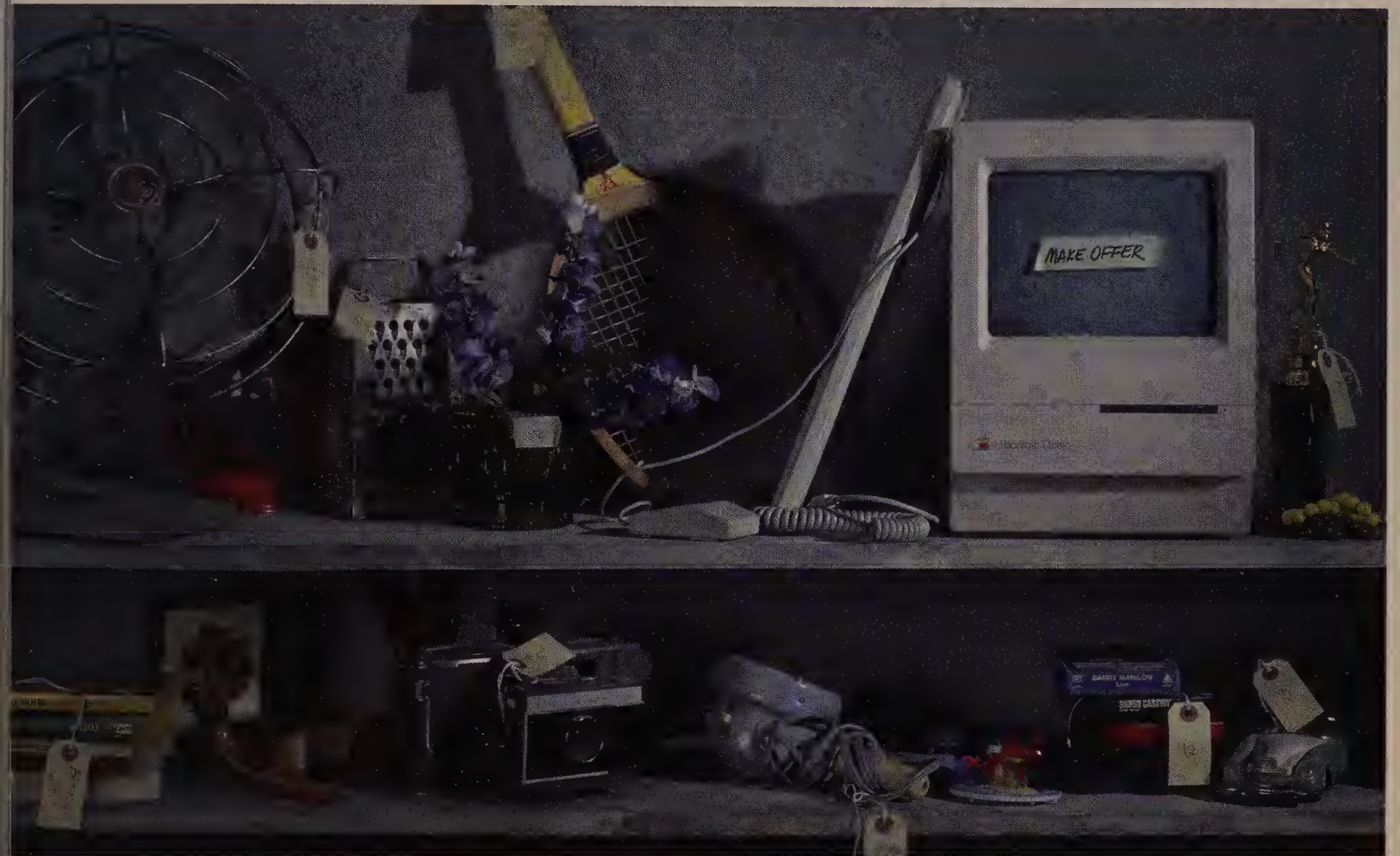
FOUNDING EDITOR

Andrew Fluegelman 1943-1985

Macworld is a publication of Macworld Communications, Inc. Macworld is an independent journal not affiliated with Apple Computer, Inc. Macworld, MW Lab, Desktop Critic, Quick Tips, and Conspicuous Consumer are registered trademarks of International Data Group, Inc. APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER is a trademark of Apple Computer, Inc. Printed in the United States of America. Copyright © 1992 Macworld Communications, Inc. All rights reserved. Macworld is a member of IDG Communications, the world's largest publisher of computer-related information.



WHERE WILL YOUR MAC BE FIVE YEARS FROM TODAY?



Sharing shelf space with your old 8-tracks and bowling trophies isn't likely what you had in mind for your Mac when you bought it. That's why **TECHWORKS** offers so many options in **MACINTOSH UPGRADES AND PERFORMANCE ENHANCEMENTS**.

TechWorks understands your need to stay up-to-date with technology. Whether you want additional memory to run more powerful applications or the increased speed an accelerator offers, TechWorks provides **EASY, COST-EFFECTIVE** solutions for every Macintosh model.

TECHWORKS MEMORY UPGRADE KITS let you take advantage of System 7, run more applications

at once, install more fonts and INITs, utilize print spooling, and get your PowerBook powered up, without spending a fortune. **TECHWORKS ACCELERATOR CARDS, FPUS, VIDEO AND CACHE CARDS** gear up your Mac to run full throttle, zipping through spreadsheets, full-color

Circle 131 on reader service card.



TechWorks Memory Kits are available today at your SuperStore!

TECHWORKS ACCELERATORS

	68030 Accelerators			68040 Accelerators	
	25MHz	40MHz		25MHz	33MHz
SE	\$495	\$850	LC	\$1595	
Classic	\$495	\$850	NuBus	\$1549	\$1895

TechWorks Accelerators offer high-performance at the BEST PRICES!

graphics, database sorts, sound editing—the possibilities are endless. TechWorks backs all enhancement products with a **LIFETIME WARRANTY**, Toll-Free Support, 30-Day Money Back Guarantee and a 24-Hour Replacement Policy.

TECHWORKS PERFORMANCE ENHANCEMENTS.

Some things were built to last.

Call Today for Your FREE Product Guide!



CALL DIRECT: 1-800-395-8949

Technology Works, Inc.; 4030 Braker Lane West, Suite 350; Austin, TX 78759
International Orders: (512) 794-8533; Facsimile: (512) 794-8520

TechWorks Accelerates your Mac!

TECHWORKS



Winning Co



**Baseball
and hotdogs**



**Mom
and apple pie**

Every business needs “recognition.”

Caere® and Hewlett-Packard have joined forces again. It's hard to imagine HP's award-winning scanners without equally great page recognition software. Kind of like peanut butter without jelly. Mom without her apple pie. Or Peter and Paul without Mary.

HP and Caere let you put your best image forward, whatever your business or profession, allowing you to enter text, numbers or graphics directly into your Macintosh® without a single keystroke. It's like having a personal assistant to type reports or prepare graphics for key presentations around the clock.

A combination to match your need.

And now you can choose from two winning combinations to match your own *unique* set of needs.

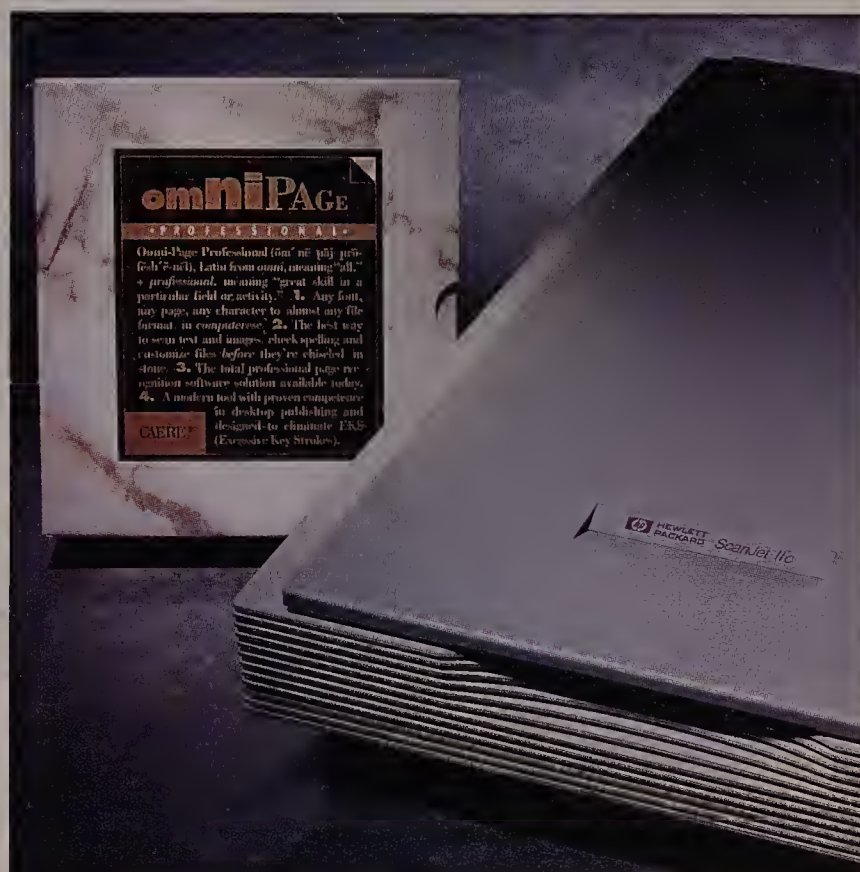
Choose *OmniPage* Direct and the HP ScanJet IIp scanner for the Mac, the ideal solution if you happen to be an independent business person, or consultant, and require a powerful option at the most affordable price. Within minutes you'll be up and running, entering text and graphics of all sorts – directly into your favorite word processor, spreadsheet or page layout program. All without a hitch.

Or consider the world's most advanced page recognition solution, *OmniPage* Professional and the HP ScanJet IIc scanner for the Mac. This is the right choice if you require state-of-the-art capabilities, along with the world's most accurate and customizable OCR, 400 dpi text and images, as well as grayscale and 24-bit color.

Combinations



**The HP ScanJet IIP scanner
and OmniPage Direct**



**OmniPage Professional and
the HP ScanJet IIC scanner**

It pays to get recognized.

Now you can have the best for less with an HP "Fame and Fortune" rebate and a *bonus* money saving offer from Caere. If you own a small business and need to increase your productivity right away, save up to \$100 when you buy the HP ScanJet IIP scanner for the Mac and

OmniPage Direct. If you require the "industrial strength" page recognition solution – one that can tackle even coffee soaked memos, reams of paper, or documents – buy the HP ScanJet IIC scanner for the Mac and *OmniPage* Professional and save up to \$200!

Now is your chance at "Fame & Fortune."

Buy *OmniPage* Direct and the HP ScanJet IIP scanner for the Mac now and get \$50 from Caere and \$50 from HP!

Buy *OmniPage* Professional and the HP ScanJet IIC scanner for the Mac now and get \$100 from Caere and \$100 from HP!

Call Caere at 1-800-535-SCAN

Call HP at 1-800-35HPMAC, ext. 7141

Offer valid through January 31, 1993.

CAERE®

**hp HEWLETT
PACKARD**

Caere, OmniPage and the Caere logo are registered trademarks of Caere Corporation. All other registermarks and trademarks are of their respective companies.

Circle 162 on reader service card

So Small. So Powerful...



Submit Proof of Purchase For
FREE CARRYING BAG
Through December 31, 1992



Padded Carrying Bag
Especially Designed For The
"Super-Small" Series

For Those Who Think Something Has to be Big to be Powerful... Take a Look at MicroNet's "Super-Small" Storage Systems

Are you looking for cost-effective but powerful 3.5" hard disk drives, rewritable optical systems, or DAT backup? We invite you to examine our new "Super-Small" Series of data storage systems.

MicroNet is offering 3.5" disk drives from 240 to 1186 MBytes, with average times as fast as 8 ms and spindle speeds fast as 6300 RPM. These small, yet powerful, hard drive systems can sustain data transfer rates as high as 3.8 MBytes per second!

In addition, MicroNet offers 3.5", 128 MB Sony rewritable optical drives, and 4 mm DAT backup systems with up to 8 GBytes on a single shirt-pocket size cassette. All of this in a system of only 4.5 x 5 x 9.5" and weighing less than 6 lbs.

These systems are compatible with IBM PC, PS/2, EISA and compatibles, RS/6000, Macintosh, Quadra, Sun, SGI, and NeXT computers. They're shipped fully tested and formatted and come complete with shielded data cable, and SCSI terminator.

Nothing is more powerful than MicroNet's new SS-540 or SS-1240 hard disks systems developed around Maxtor's new 3.5", 8 ms, fast-spindle drives. These new systems are especially suited for use with file servers, graphics, multi-media, or other disk-intensive applications.

So when you need the most powerful and reliable data storage systems, think "Super-Small". Call today for the name of a Reseller near you. 1-714-581-1540.



MicroNet Technology, Inc.

20 MASON • IRVINE, CA 92718 • TEL: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: MICRONET.SLS • CompuServe: 76004,1611

Super-Small is a trademark of MicroNet Technology, Inc. All other trademarks are property of their respective owners.

Circle 113 on reader service card

MacBulletin

L A T E - B R E A K I N G N E W S

Early PowerBook 100s Recalled:

Apple said there was a possibility of a short circuit that can melt a small hole in the bottom of the computer's case. Owners of PowerBook 100s with serial numbers below SQ211xxxxxx or SS216xxxxxx should call 800/572-1731 to arrange for Apple to modify their systems at no cost.

QuarkXPress Revised: Version 3.2 of Quark's (303/894-8888) package can gather document components in preparation for taking them to a service bureau and compile a list of information the service bureau requires. The new version (\$895) supports UserLand Apple events scripting; has a next-style feature for text formatting; and ships with several XTensions including a color blend tool and an EfiColor color-calibration tool.

Apple cut retail prices on Macs in late September by amounts ranging from 11 percent to 36 percent. The steepest cuts were on models of the Classic II, the LC II, the IIsi, and the IICI; the smallest cuts were on models of the Quadra 950. The Classic II 4/40 now lists for \$1079, and the Quadra 950 8/400 lists for \$8169.

Apple shut its Fremont plant and announced that it would lay off 345 workers as part of a worldwide restructuring of manufacturing and distribution. Many of the Fremont, California, plant's functions will be transferred to Sacramento. The moves are part of Apple's efforts to cut costs as the price war in personal computers continues.

Aiming to connect with IBM, Apple (408/974-4667) has introduced the Data Access Language Server, designed to provide Macintosh

users with transparent access to databases stored in IBM's AS/400 series of midrange systems. The SQL-based DAL Server should ship in December at prices that will vary by the number of users.

Apple and Kodak align, agreeing to cooperate on linking Kodak's Photo CD (a standard for digital photography on CD ROM) more closely to the Mac. Apple has said it will add Photo CD support to System 7 and future operating systems. Kodak said it will use Macs in its retail locations where Photo CDs are created.

Trapping Tool: Island Graphics (415/491-1000) is developing IslandTrapper for preparing complex color printing jobs. EPS files are imported into IslandTrapper, where users can examine and modify the program's default chokes and spreads before exporting to a color-separation package. IslandTrapper will list for \$2195.

Alias Sketch Upgraded: Alias's (416/362-9181) 3-D free-form drawing tool Sketch is being upgraded to version 1.5. The upgrade reads native Adobe Illustrator and Aldus FreeHand files; imports and exports IGES and exports RIB; supports cutting holes through objects; provides point and ambient lights; and has several new types of projection and environment maps. It lists for \$995.

On Schedule: Visionary Software (503/246-6200) is upgrading its reminder and to-do list manager First Things First to version 3.0. The new version has a global find command; lets users select and reschedule multiple items; and can assign items to a day without a specific time. Version 3.0 (\$79.95) includes a copy of DynoPage Lite. **m**

The simplest Mac spreadsheet Read about it here.

Introducing 1-2-3 for Macintosh Release 1.1.

1-2-3® for Macintosh® has always been the easiest-to-use Mac spreadsheet. And now, this latest version of 1-2-3 is even easier.

Easiest graphing of any Mac spreadsheet.

With 1-2-3 your graphs and charts are stored in the same files as your worksheets. (Something you won't find in Microsoft® Excel.) This means you can make one-click graph style changes, pull objects across window boundaries to the worksheet, link chart titles to cells, and shrink charts so that they appear as small icons on your worksheet. You can also manipulate data, text, and graphics all in the same file with *one* set of menus and only *one* set of tools. The result is a spreadsheet that lets you spend your time figuring, not figuring things out.

True 3D and In-Cell editing. For faster spreadsheet building.

1-2-3 is the *only* spreadsheet that offers true 3D, so you can link and consolidate data or create multi-page reports all in a single work-sheet file. Without having to link the files. In short, 3D makes the job of organizing and analyzing your work fast and easy. And if that isn't enough of an inducement, this should be: only 1-2-3 offers In-Cell™ editing,

so you can enter a formula directly into a cell for faster, easier editing.

The simplest transition from DOS to Mac.

1-2-3 is the clear choice for DOS spreadsheet users moving to Macintosh because only 1-2-3 offers the traditional Classic® menu, which make it easier for you to access familiar 1-2-3 commands and run macros already written for 1-2-3.

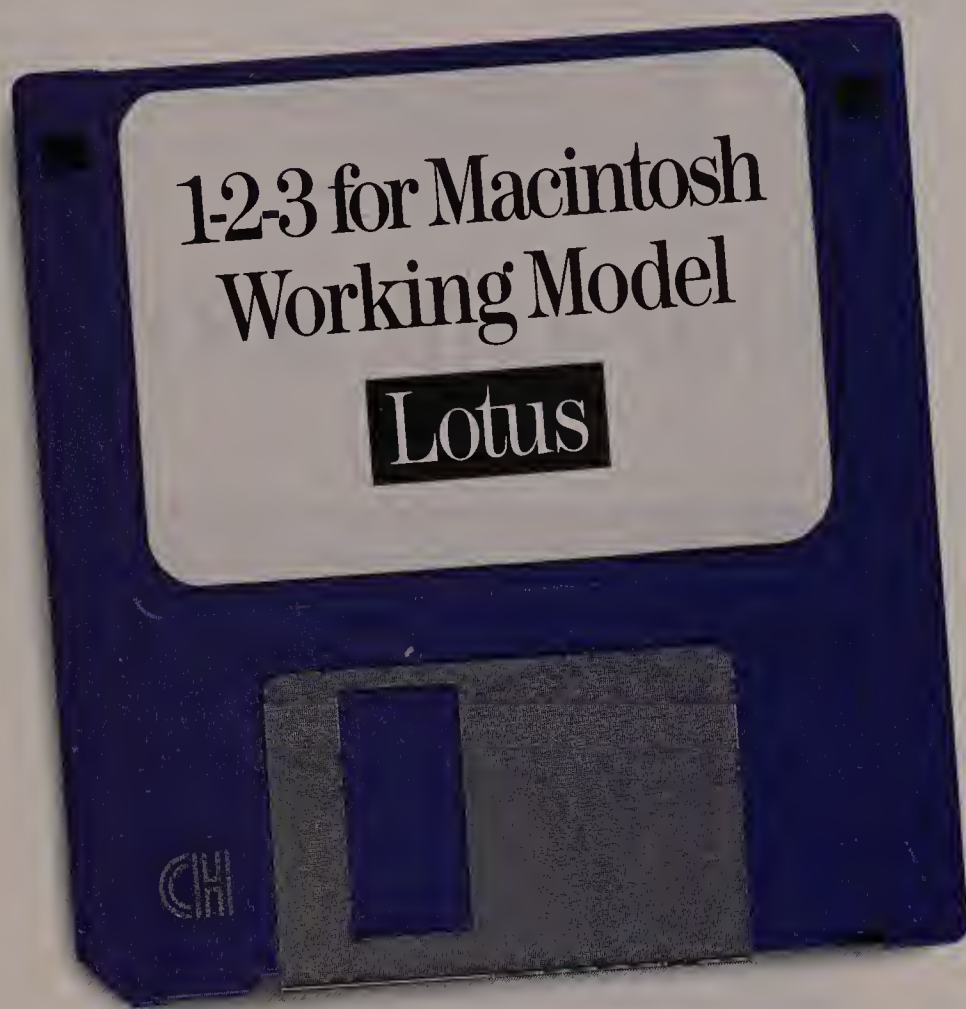
New features automate, illustrate and integrate.

This new release of 1-2-3 for Macintosh raises ease of use to a new level. Now you can drag and drop data between worksheets. You can use our new SmartSum to automatically add multiple columns or rows, even on the spreadsheets behind the one you're working on.

And you can take advantage of the many graphic enhancements. Enhancements that let you place things like pictures behind your graphs. That let you stack pictures to form bar charts. That let you simultaneously view your graph and the numbers that make up your graph. All of which makes it easy for you to be understood by others.

There it is in black and white: 1-2-3 is the world's easiest to use Macintosh spreadsheet. But if you don't believe everything you read, we've got a more colorful way to make our case on the right.

Or try this.

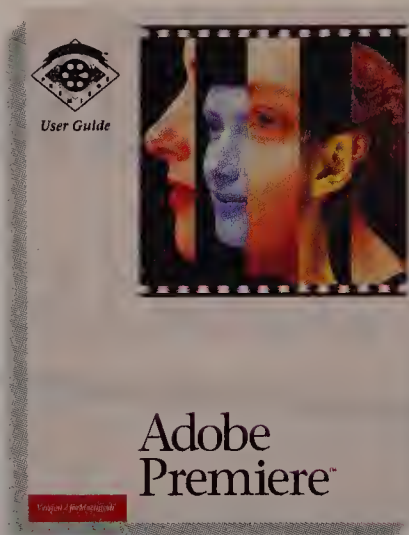


Words on the left didn't convince you?
Buy a copy of 1-2-3 for Macintosh from your
favorite reseller* and try it for 60 days with a full
money-back guarantee direct from Lotus. Or
call **1-800-TRADEUP, ext. 7122**** for a free
working model. (Excel users be sure to ask
about our special upgrade price.***)

Lotus 1-2-3 for Macintosh

*Be sure to ask your Apple Authorized Retailer about Apple's new "Easy Way" bundle which gets you 1-2-3 and 3 other leading software products at a great price. **In Canada, call 1-800-GO-LOTUS. ***Please have your credit card and product package ready when you call. ©1992 Lotus Development Corporation. Lotus, 1-2-3 and DataLens are registered trademarks of Lotus Development Corporation. Classic is a registered trademark licensed to Lotus Development Corporation. Microsoft is a registered trademark of Microsoft Corporation. Mac and Macintosh are registered trademarks of Apple Computer, Inc. This product includes Adobe Type Manager. Adobe Type Manager and the ATM logo are registered trademarks in the United States of Adobe Systems, Incorporated.





READ THE BOOK.



SEE THE MOVIE.

INTRODUCING ADOBE PREMIERE™ 2.0.

The editing program that lets you create high-quality QuickTime™ digital movies and videotapes right on your Macintosh®, right from the start. In fact, making movies has never been easier, faster or more precise. It's like having a professional production studio on your desktop. Create dramatic transitions. Mix sound. Superimpose graphics and titles. Add animation. Generate special effects. Even fly a movie

clip around the screen. Then, when you're finished, output your blockbuster directly to videotape. Or, with support for time code and edit decision lists, you can export your work to professional production equipment for the highest-quality output. And because you own the studio, you have complete creative control and save money like crazy. To arrange an Adobe Premiere screening, see your Adobe™ Authorized Reseller or call Adobe at 1-800-833-6687, Dept. R 1246.



The Decline of the Desktop Macintosh

BY ADRIAN MELLO

THE TIME HAS COME WHEN more and more desktops will give way to PowerBooks. Not just as an addition to a desktop Macintosh, but as a replacement. A year ago I wouldn't have dreamed that a notebook Macintosh could displace the desktop configuration. But the longer I've used a PowerBook, the more I've noticed a transformation in my attitude toward the desktop machines I use at home and at work. After taking the PowerBook on a few business trips, I began to greet my desktop machines with a certain reserve. A couple of trips later, I would just turn on the PowerBook and work on documents in front of my idle Mac IIci. Later yet, I became slightly irritated when I reached to turn on my desktop machine. What a difference between this reluctance and the enthusiasm I always felt when I turned on the PowerBook. It was almost as if I felt obligated to use the IIci because of its superior keyboard and display and an outdated notion that it was my core computer. In any case, it was becoming clear that I had changed allegiance to the PowerBook as my primary computer.

The PowerBook Conversion

THE FACT THAT MORE AND MORE PEOPLE are converting to PowerBooks as their sole or primary computer should not surprise those who experienced the original Macintosh design. The PowerBooks are a return to the original hardware virtues of the Mac: integration and portability. After all, the original model for the Macintosh was the Dynabook—a tightly integrated booklike computer that would work much like an electronic assistant. Although it might not seem convincing now, the original Mac was once considered portable. It was a comparatively light, one-piece computer (overlooking the small keyboard and mouse) with half the footprint of a standard-issue PC, and it could be toted around in an unassuming-looking satchel. PowerBooks obviously provide a much greater degree of portability, but the basic idea is the same. The not-so-portable original Mac also had its configuration limits when compared with the typical DOS machine, but the total package was so well thought out and so tightly

integrated that it was compelling to pioneering users.

The Fall of the Mac II

IF YOU DON'T BELIEVE THAT THE MAC II family will give way to PowerBooks, look at what's going on in the midrange of the Macintosh product line. One way to define the midrange is to say it's the price point around which most computing mortals orbit. Most of us can justify (or rationalize) spending up to \$3000, plus or minus \$500, for a basic CPU purchase (not including monitor and keyboard). Another way to define the midrange is by looking at which Mac models sit outside its bounds. The low end is covered by Classics, LCs, and their variants. The high end is Quadra territory.

Whichever definition you prefer, Apple's new product introductions indicate a drastic change in its midrange computer offerings (see "Looking down the Line" in this issue). For the past few years the midrange has been represented at any given time by two or three models of the Mac II. But now, the Mac IIsi and IIci will likely be discontinued as soon as corporations adjust their purchasing lists and Apple clears out its inventory. Those models will follow the original Mac II, the Mac IIX, and the Mac IICx into oblivion, leaving the new Mac IIVx as the sole remaining midrange Mac II.

The Rise of the PowerBook

ARE THERE ANY OTHER MIDRANGE MACS? Yes—mostly PowerBooks. There are now four new midrange PowerBooks (or five, depending on how you define the high end), including the PowerBook 145, the PowerBook 160, the Duo 210, the Duo 230, and toward the high end, the PowerBook 180. Where choice is concerned, the middle ground is largely defined by PowerBooks these days, not conventional desktop Mac II's and their two-letter variants.

So the question may not be whether to buy a PowerBook or a desktop Mac, but which PowerBook to buy. For many users portability is a key virtue—perhaps more impor-

tant than expandability, if from the outset the computer comes outfitted with enough power. The new PowerBooks come close to combining the virtues of desktop Macs with those of notebooks. They now easily attach to a color or grayscale monitor. By adding a full-size keyboard and mouse, you can create an office system equal to most Mac II's. You also have a notebook computer to take on business trips or simply to take home for the evening. And if you buy another monitor and keyboard, you can have a full-fledged system at home as well.

No, they're not perfect. The PowerBook 160 and 180 run into expansion limits if you want a 19-inch monitor or 24-bit color, or if your work requires specialized expansion boards. However, you can still get Ethernet by attaching an external SCSI device. But you have to live without massive internal hard drives, and kiss off any chance at an accelerator upgrade.

Expanding on the PowerBook Duo

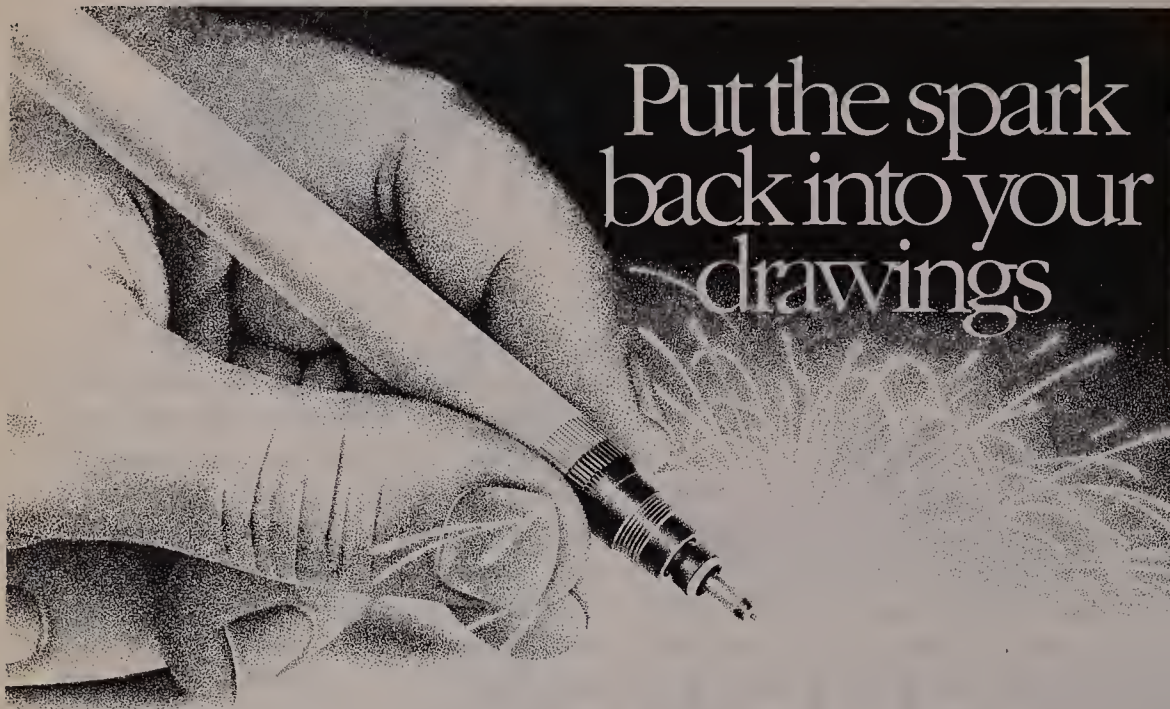
IF YOU REMAIN UNCONVINCED ABOUT replacing a desktop Mac with a PowerBook, it's probably because you need more expansion options. If so, consider the PowerBook Duos (see "Apple's Dynamic Duo" in this issue). These PowerBooks approach a desktop computer's expansion capability when you add a Duo Dock, which has two NuBus slots. The Duo Dock provides a major convenience by automatically configuring your docked PowerBook Duo with the proper system software settings, such as printer selection and screen color. This is especially important for people who plan to take the PowerBook away from the office frequently.

Remarkably, the combined price of a PowerBook Duo 210 and a Duo Dock is close to the price of a Mac IIVx with a CD ROM drive. There is even a less-expensive alternative if you don't have an immediate need for expansion slots. By purchasing a PowerBook Duo with only the Duo MiniDock, you can attach a color monitor and other options. If you leave the Duo MiniDock at the office, it

continues



*Will the new
PowerBooks
conquer
the desktop?*



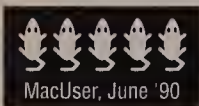
with PowerDraw, accepted worldwide as the professional 2D CAD standard for the Macintosh. Fast. Intuitive. Elegant.

PowerDraw™
By Engineered Software

For free brochure, call Engineered Software. 1-919-299-4843.
In Canada, call Evoy & Associates. 1-204-453-8111.

Circle 12 on reader service card.

As far as Apple is concerned,
only one table can support the family.



Apple® calls it "The perfect place to put your computer to work." It's sturdy, ergonomic and carefully designed around Apple's modular footprint to fit the Mac family *plus* peripherals. Call today for a free catalog of our complete line.

MacTable®
☎ 800-722-6263
or 206-481-5434 in WA state



ScanCo

P.O. Box 3217, Redmond, WA 98073-3217

MacTable design is patent pending.
MacTable is a trademark of Scandinavian Computer Furniture, Inc. Apple is a trademark of Apple Computer, Inc.

maintains the PowerBook's physical connections to your peripherals. If you need to attach to a monitor away from the office you can always take the Duo Mini-Dock with you. And unless you carry your PowerBook to and from the office on a daily basis, you can probably live with the mild inconvenience of attaching a PowerBook Duo to the Duo MiniDock and configuring them. Later, you can add a Duo Dock if you decide that you want a 19-inch monitor, 24-bit color, or other options. This strategy will satisfy the expansion needs of most users. Of course, even the Duo Dock falls short of providing the vast expansion capability of a Quadra 950—but so do most desktop Macs.

Not for Everyone

A POWERBOOK CAN SATISFY THE TYPICAL midrange user who needs a portable but who also needs a real monitor and keyboard for extended work in the office or at home. But even so, a portable may not be for everyone. It won't satisfy users who want a second, backup computer, or who consider their office-computer use to be separate from their use of computers elsewhere. Nor will it satisfy those who want the low-cost expansion capability of a desktop and simply don't need or want a computer away from where they work (the Mac IIvx is an excellent choice for such users). Miniaturizing a fully functional computer into a laptop still costs more than making a desktop system, and until the costs become nominal, users on a budget will gravitate to the tremendous value offered by low-cost Macs like the Classic and LC. Likewise, expect users of applications such as high-end graphics to prefer industrial-strength computers such as the Quadra 950. For these reasons and others, desktop Macs won't come anywhere near extinction for some time.

Despite these limits, I wager that most midrange users want the flexibility of a notebook computer over the extra expandability of a desktop computer. I've talked to many corporate users who had already decided to purchase a first-generation PowerBook over a desktop Mac. The biggest drawback to the first-generation PowerBooks was not the absence of slots but the substandard display. Now that users can attach a color or gray-scale monitor, the decision has become much easier.

With the well-thought-out design of the new PowerBooks, a new set of pioneering users will begin to redefine the shape of the Macintosh, a shape more convenient and flexible than ever before. A shape that is truer to the original Mac concept than all preceding Macs', and that indicates the rise of the PowerBook and the decline of the desktop Mac. **m**

Triple Crown Winner.

Hedge your bets. With a La Cie DAT Drive!

When you need a fast, efficient way to back-up and archive valuable data on your Mac, then look at our 4mm DAT drive. With up to 2 gigabytes of storage on each cassette, standard DDS format, reliable Archive mechanism plus Dantz's Retrospect back-up software, you get an incredible value.

Need even more space? Then try our new Compression DAT drive. With built-in hardware to fit up to 8 gigabytes on each cassette (in standard DDS-DC format to ease data interchange), it offers very high-grade performance and reliability.

Want one for your Quadra 900/950? Both our DAT drives are now available as internals for built-in back-up power.

1.3-2.0GB DAT Drive \$1299 internal[†] \$1399 external
4-8GB Compression DAT \$1599 internal[†] \$1699 external

FREE!
Retrospect
\$249 value*

FREE!
Tape Included
\$45 Value*



Cirrus™ DAT Drive
1.3-2.0GB storage

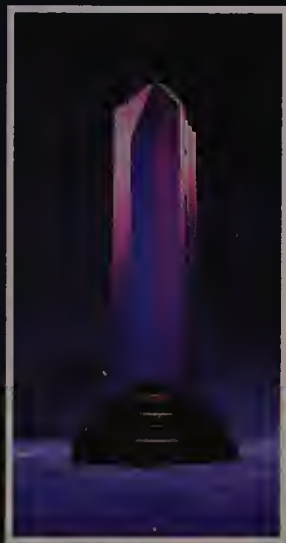
\$1299
Internal[†]

In the 1992 hard-drive triple-crown, La Cie™ swept all three Macworld World Class Award fixed-drive categories. Thanks to all those Macworld readers who named La Cie the best bet in mass storage solutions.

"...I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."

MacWeek, February 1991

The 1992 Macworld World Class Awards



Best Hard Drive!
(under 80MB)

Best Hard Drive!
(80-200MB)

Best Hard Drive!
(over 200MB)

Best Color Scanner!
La Cie Silverscanner

**30 Day
Money Back
Guarantee***

For a sure winner, breeze to a phone and call toll free.

LACIE
LIMITED
A QUANTUM COMPANY

800-999-1182

6 a.m.-6 p.m. PST Mon.-Fri.
International 503-520-9000 Fax 503-520-9100

[†]For Quadra 900 or 950.

VISA, Mastercard, C.O.D. and approved purchase orders accepted*

We're the odds-on

Smart people know how to pick a winner! That's why Macintosh users voted La Cie their favorite in all three 1992 Macworld World Class Award fixed-drive categories. For across-the-board quality, innovation, service and value, La Cie hard drives are the smart-money bet!

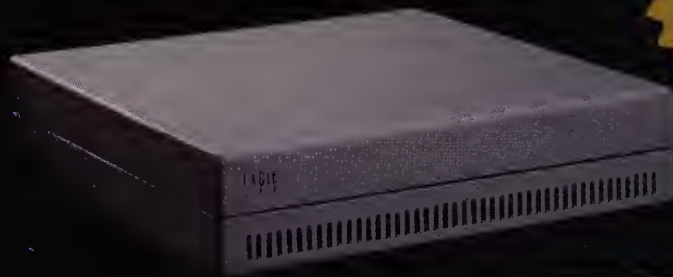
Now
Shipping with
System 7!*

NEW!
120MB Powerbook
Quantum
Internal Drive

FREE!
Powerbook opener
\$19.95 value*

FREE!
Silverlining™
\$149 value*

La Cie ZFP Drive

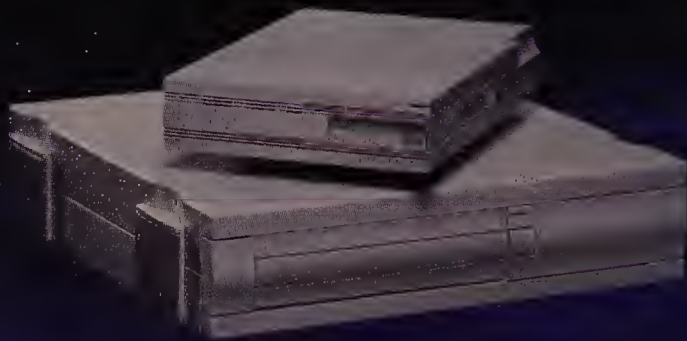


La Cie Cirrus

La Cie Tsunami
Portable and fast,
starting at
under 2.75 lbs.



La Cie
ExpressDrive™



*Call for details on terms, conditions, limited money back guarantee and free offers. System 7 software included only with certain configurations. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP Plus, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscan, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. © Copyright 1992 La Cie, Ltd. 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

favorite.

Tsunami and Cirrus Drives

Winner of Industrial Design's famous ID award, these beautiful quiet drives pack power beneath sinuous lines.

Internal & ZFP™ Drives

Economical, reliable and well-built.

Drive Size	Internal	External
42MB Quantum ELS NEW!	\$199	\$299
50MB Quantum LPS	\$229	\$329
80MB Qntm 2 1/2" for Powerbook	\$399	PocketDrive
85MB Quantum ELS NEW!	\$299	\$399
100MB Quantum LPS	\$349	\$449
120MB Quantum	\$399	\$499
120MB Qntm 2 1/2" for Powerbook	\$499	PocketDrive
127MB Quantum ELS NEW!	\$369	\$469
170MB Quantum ELS NEW!	\$419	\$519
240MB Quantum LPS	\$679	\$779
425MB Quantum Maui	\$949	\$1049
525MB Qntm 3 1/2" LPS NEW!	\$1169	\$1269
700MB Qntm 3 1/2" PD NEW!	\$1559	\$1659
1.05GB Qntm 3 1/2" PD NEW!	\$1899	\$1999

La Cie ExpressDrive

Fast, reliable, removable hard drives.

The ultimate in data security.

ExpressDrive Chassis	\$399
120MB Quantum LPS	\$799
240MB Quantum LPS	\$949

\$399
120MB ZFP
Quantum Magnum*

30 Day
Money Back
Guarantee*

The 1992
Macworld
World Class
Awards

Best
Hard
Drive!
(under 80MB)

Best
Hard
Drive!
(80-200MB)

Best
Hard
Drive!
(over 200MB)

Best
Color
Scanner!
La Cie
Silverscanner

"I like the
La Cie Drives
Best"

David Ashbaugh

Put your money on a sure winner and call toll free.

LACIE
LIMITED
A QUANTUM COMPANY

800-999-1182

6 a.m.-6 p.m.PST Mon.-Fri.

International 503-520-9000 Fax 503-520-9100

VISA, Mastercard, C.O.D. and approved purchase orders accepted

Call 1-800-999-1182 for fast, friendly service!

Products you love from the company you trust: La Cie, a Quantum Company.

The 1992 Macworld World Class Awards

Best Hard Drive!
(under 80MB)

Best Hard Drive!
(80-200MB)

Best Hard Drive!
(over 200MB)

Best Color Scanner!
La Cie Silverscanner

The La Cie Advantage

With every La Cie hard drive you get:

- TOLL-FREE technical support.
- FREE Silverlining (\$149 value).
- FREE switchable active termination on ZFP, Cirrus and Tsunami drives (\$50 value).
- Universal power supply.
- Approved by FCC, UL, TUV, VDE and CSA for legal safe operation and industrial grade quality.



Internal & ZFP™ Plus Drives

Our new line-up of big hard drives features a wide selection of capacities and quality brand-name mechanisms—all at very affordable prices. Be sure to look at our new 3 1/2" high-capacity drives, also available in our Cirrus™ case!

650MB Seagate (5 1/4")

\$1299 Int **\$1449** Ext

700MB HP (5 1/4") NEW!

\$1699 Int **\$1849** Ext

1.05GB DEC (3 1/2")** NEW!

\$1999 Int **\$2099** Ext

1.05GB HP (3 1/2")** NEW!

\$2099 Int **\$2199** Ext

1.2GB Seagate (5 1/4")

\$1749 Int **\$1899** Ext

1.2GB HP (5 1/4") NEW!

\$1989 Int **\$2139** Ext

1.2GB Seagate (3 1/2")** NEW!

\$2119 Int **\$2219** Ext

1.6GB Seagate (5 1/4")

\$2299 Int **\$2449** Ext

1.6GB HP (5 1/4") NEW!

\$2399 Int **\$2549** Ext

2.1GB Seagate (5 1/4") NEW!

\$2949 Int **\$3099** Ext

2.4GB Seagate (5 1/4") NEW!

\$3299 Int **\$3449** Ext

**Also available in our award winning Cirrus case.



Cirrus™ Optical

Our quiet Cirrus Optical drives offer 128MB removable media storage, compact portability and fast 38ms performance.

128MB 3 1/2" Optical

\$1399 Int† **\$1499** Ext

128MB Optical Disk

\$79



PocketDrive™

Pack it in your pocket, purse or briefcase. PocketDrives offer convenient desktop connection at a great price.

40MB incl. T-connector **\$299**

80MB incl. T-connector **\$549**

120MB incl. T-connector **\$649**

Optional PocketDock Cable **\$59**

Extra T-Connector **\$59**

Universal AC Adaptor **\$59**

80MB Powerbook Internal with FREE
Powerbook Opener (\$19.95 value) **\$399**

120MB Powerbook Internal with FREE
Powerbook Opener (\$19.95 value) **\$499**

FREE!
Retrospect
\$249 value*



Cirrus™ Compression DAT

Our new Cirrus Compression DAT drive has the power to handle large backup jobs with up to 8GB of storage per cassette in standard DDS-DC format.

4-8GB DAT (incl. 1 tape)

\$1599 Int† **\$1699** Ext

Cirrus™ DAT

Our standard Cirrus DAT drive delivers ARDAT technology in standard DDS format at an affordable price.

1.3-2.0GB DAT (incl. 1 tape)

\$1299 Int† **\$1399** Ext



FREE!
Retrospect
\$249 value*

Cirrus™ Tape

For smart, cost-effective backup, our tape drives offer quality TEAC mechanisms plus a free tape cartridge and Retrospect™ software by Dantz.

155MB Tape Drive

\$549

600MB Tape Drive

\$699 Int† **\$799** Ext

\$549
88MB
Removable*



FREE!
Silverlining™
\$149 value*

ZFP™ Removable

Our 44-88MB removable media drives deliver Syquest technology in a zero footprint case. Includes 1 free cartridge.

44MB Drive **\$499**

88MB Drive NEW! **\$549**

44MB Cartridge **\$63**

88MB Cartridge NEW! **\$98**



Silverlining™

Hailed as the most powerful and useful hard disk management software available, Silverlining offers unique features found no where else! Give your hard disk a Silverlining.

Silverlining

\$149

*Call for details on terms, conditions, limited money back guarantee and free offers. System 7 software included only with certain configurations. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP Plus, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscanner, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. © Copyright 1992 La Cie, Ltd. 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

FREE!
Read-It OCR Pro!
\$595 value*



Silverscanner™

Superior line art, detailed greyscale and gorgeous color are the trademarks of this one pass, 24bit, high resolution, feature-packed scanning machine. Just scan it!

Silverscanner with Color It!

and Read-It O.C.R. Pro! **\$1399**

Silverscanner with ColorStudio

and Read-It O.C.R. Pro! **\$1599**

Silverscanner with Photoshop

and Read-It O.C.R. Pro! **\$1799**

Silverscanner with

Photoshop, ColorStudio

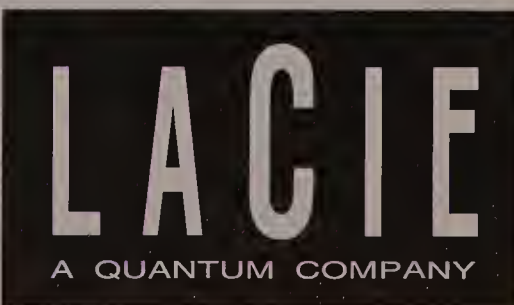
and Read-It O.C.R. Pro! **\$1899**

**CALL NOW
TO ORDER!**

Now
Shipping with
System 7!*

"I like the La Cie Drives Best"

David Ashbaugh



800-999-1182

6 a.m.-6 p.m.PST Mon.-Fri.
International 503-520-9000 Fax 503-520-9100

VISA, Mastercard, C.O.D. and
approved purchase orders accepted*

Call 1-800-999-1182 for fast, friendly service!

† For Quadra 900 or 950.

FREE!
Read-It OCR Pro!
\$595 value*

It's a photo

You made Silverscanner™
number one. And, we're still
riding hard for you! In the
high-stakes race of color
scanning, La Cie remains way
out in front! Our Silverscanner
is more versatile, more capable,
more colorful than ever before.
And when it comes to service,
La Cie always finishes first.
Why gamble on anything less.



Actual Silverscanner image

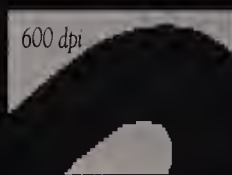
© Pennington



Actual
Silverscanner
image

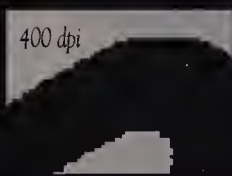
La Cie Silverscanner
1200 dpi at 100%

600 dpi



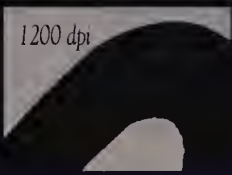
Microtek 600ZS

400 dpi

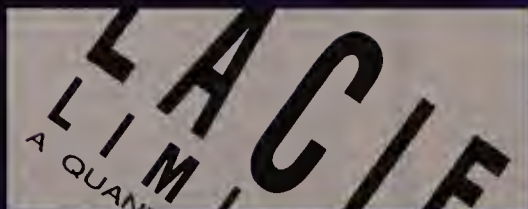


Howtek Scanmaster 3

1200 dpi



La Cie Silverscanner



*Call for details on terms, conditions, limited money back guarantee and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP Plus, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscanner, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. Bundles in U.S.A. only. Ad design and production on Macintosh by Graphic Witness. © Copyright 1992 La Cie, Ltd., 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

finish!

La Cie Silverscanner

Our Silverscanner is so good, we used it to produce this ad. Clean your glasses and take a look. Gorgeous color. Fine image detail. Excellent tonal range. Very high resolution. It's all there. The proof is right in front of you! Bet on the Silverscanner.

- 24 bits, one pass, up to 1200 dpi
- Wide dynamic range
- Lightning fast scanning
- Color dynamic previews
- FREE Silverscan™ software plug-ins



La Cie Silverscanner

La Cie Silverscanner
with Color It! and
Read-It O.C.R. Pro!

\$1399

La Cie Silverscanner
with Photoshop, ColorStudio
and Read-It O.C.R. Pro!

\$1899

The 1992
Macworld
World Class
Awards

Best
Hard
Drive!
(under 80MB)

Best
Hard
Drive!
(80-200MB)

Best
Hard
Drive!
(over 200MB)

Best
Color
Scanner!
La Cie
Silverscanner

"The choice is
clear . . . buy
the La Cie
Silverscanner."

Macworld, June 1991

30 Day
Money Back
Guarantee*

For results that will put you in the winners's circle, call us toll free.

LACIE
LIMITED
A QUANTUM COMPANY

800-999-1182

6 a.m.-6 p.m.PST Mon.-Fri.
International 503-520-9000 Fax 503-520-9100

VISA, Mastercard, C.O.D. and approved purchase orders accepted*

The value of a thoroughbred.

Run light. Run fast.

With a La Cie Cirrus Optical Drive!

Smaller, faster (38ms seek time) and less expensive than conventional optical drives, this remarkable new 3 1/2" magneto optical drive uses cartridges that are the same size as 3 1/2" floppies but store 88 times more data than high-density floppy disks. System 7 and our Silverlining are included, FREE! If you have a Quadra 900/950, you'll want our new internal version (brackets included).

128MB Cirrus™ Optical \$1399 internal† \$1499 external

FREE!
Silverlining™
\$149 value*

FREE!
Disk Included
\$79 Value*



Cirrus™ Optical Drive
128MB storage

\$1399
Internal†

When it comes to world-class speed and performance, nothing eclipses the form and function of a true thoroughbred. At La Cie, our goal is to make each and every product a thoroughbred. From the sleek lines and dainty footprints of our award-winning cases to the power of our technological muscle, La Cie builds champions that leave the competition in the dust. And as a Quantum company, we have the financial strength and staying power to bring you future generations of winners. For unbeatable technology and support, La Cie's the winning pick. You can bet on it.

Win place and show! Call us toll free.

LACIE
LIMITED
A QUANTUM COMPANY

800-999-1182

6 a.m.-6 p.m. PST Mon.-Fri.
International 503-520-9000 Fax 503-520-9100

VISA, Mastercard, C.O.D. and approved purchase orders accepted*

30 Day
Money Back
Guarantee*



†For Quadra 900 or 950.

Letters

DECEMBER 1992

Talking Back to a Mac

THE WORD *SORRY* IS AN ACT OF CIVILITY and a damn good humanizing one, be it from a human or a machine (*The Iconoclast*, September 1992). I commend Apple for having the sensitivity to remember that even though the Macintosh may be a bundle of wires and gizmos, it is ultimately a reflection of human creativity. Since we are destined to live in a modern world interacting with machines, why should we not try to humanize them as much as possible?

Chris Martell
Maui, Hawaii

STEVEN LEVY MAKES WHAT POINT exactly? That efforts to make the Mac understand our spoken commands and respond appropriately, employing conventions of polite speech, blur the line between machine and human? Rudeness is also a human trait.

I believe the fierce loyalty to the Mac that many users have developed over the years is traceable in part to the deliberate and successful effort by Jobs et al. to imbue it with something like a personality.

One of my favorite utilities is At Your Service, which uses the animated image of a pretty girl to remind me of my scheduled appointments in French-accented English. I look forward to Casper and other advances, and the more responsive my Mac becomes, the better, because it is literally my assistant.

Shelton Lankford
Clifton, Virginia

Spiffy Space Saver

THREE MEASLY LITTLE STARS FOR AutoDoubler (*Reviews*, September 1992)? Give me a break. It's the spiffiest thing since stereo! Last year I installed StuffIt, the industry standard. Not only was StuffIt incomprehensible, it was expensive. After hours of trying to figure it

out, I called Aladdin Systems. I was informed part of the program was missing but that the company would be glad to send me the update when it came out.

Meanwhile, I heard about a program that doubles everything without my having to go through the exasperating process of archiving everything; a program that, in fact, does it all automatically, and all for the measly—no, call that the chicken-feed—price of under \$50. Mama didn't raise no dummies; give me AutoDoubler anytime over that industry standard.

Jay Crosby
Fresno, California

Not Just for Grammar

YOUR REVIEW OF CORRECT GRAMMAR 3.0 asks why anyone would want to know "syllables per 100 words" (*Reviews*, August 1992). As a teacher, I find this information helpful in determining the reading level of a given 100-word passage. Since it seems Correct Grammar doesn't function well as a grammar checker, disappointed users could pass their programs on to their local schools.

Jeanmarie Wozniak
Erie, Pennsylvania

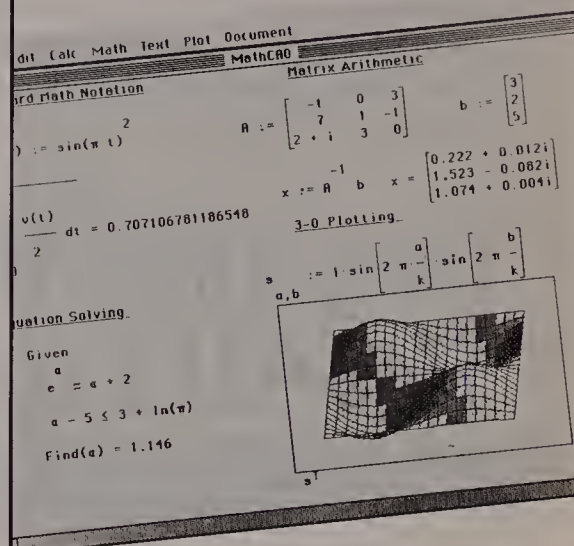
Not So Useless

IN THE DESKTOP CRITIC (SEPTEMBER 1992), David Pogue referred to the PowerBundle as "mostly useless." He neglected to mention Address Book Plus 2.0 as part of that bundle. In previous articles on contact organizers, he has given Address Book Plus a favorable review.

Steven C. Schaffer
Product Manager
Power Up Software Corporation
San Mateo, California

Mr. Schaffer is right. WriteNow (which I mentioned) and Address Book Plus (which I should have) are *continues*

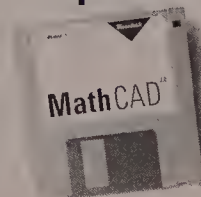
Technical calculations made easy!



Perform engineering and scientific calculations faster... and with fewer errors.

- **Mathcad 2.0 does your numerical analyses quickly, easily... and inexpensively!** The live document interface™ lets you integrate equations, text, and graphics on your computer screen. You can see what you solve and update your equations and graphs with a single keystroke.
- **You do the thinking while Mathcad does the work.** Mathcad picks up where calculators and spreadsheets leave off. With over 120 commonly-used functions built-in, Mathcad can handle your formulas, exponentials, differentials, cubic splines, FFTs, and matrices.
- **Applications Packs customize Mathcad to your work.** Ten different packs are available for electrical, mechanical, civil, and chemical engineering, and other technical applications.
- **Mathcad works on your Macintosh, PC, or UNIX workstation.** More than 120,000 engineers, scientists, and educators are already using Mathcad to turn their computers into powerful workstations that can handle virtually any technical application.

Call 800-MATHCAD to request a free demo disk!



In Massachusetts, call 617-577-1017.

For a free Mathcad Introductory Kit, clip this coupon and mail it back to us, or fax it to 617-577-8829. Or circle your reader service card.

☐ **Yes! Tell me more about Mathcad 2.0!**

Name _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone(____) _____

MathSoft

Σ + √ - = × ÷ ∫ - ∂

MathSoft, Inc

201 Broadway
Cambridge, MA 02139
USA

MW 12

MCTECH 2.0

Circle 34 on reader service card.

both standouts in the otherwise "mostly useless" software bundle.—David Pogue

Amiga/Mac Confusion

YOUR DECISION TO PRINT MARK Thompson's LightWave 3D image (*Letters*, August 1992) certainly attests to his skill and the potential of the products utilized in its creation. Unfortunately, Thompson has perpetuated a widespread

confusion in his characterization of these products. In this way, his criticism of your alleged omission is not truly appropriate.

He points out that NewTek's Video Toaster may be considered an Amiga product. In fact, as Thompson points out, even NewTek's stand-alone Toaster system is "an Amiga in disguise."

Despite Thompson's claim that the Toaster is an "extremely popular Mac peripheral," I don't know of any reliable data to support this. The Toaster is, was, and

likely will be for some time an expansion board and software that can only be used when installed in an Amiga's proprietary video slot. A Mac owner has several good reasons to use Amigas for video work, with or without a Toaster board. It's not necessary to camouflage the machine in a silly effort to transform it into some sort of Macintosh peripheral.

*Christopher Kohler
Collingswood, New Jersey*

Turn Your Mac Into a Staff of CAD Experts..

FREE
Clariscad™ Translator

Introducing MINICAD+ 4

4 Major Areas of CAD Power

2D CAD : With MiniCad+, the original award-winning CAD program, you've drafted the price/performance leader in Macintosh CAD. Hundreds of advanced, easy-to-use tools make superior-quality drawing a snap.

3D CAD : Create stunning, high-precision models directly in true 3D or auto-create from your 2D drawings. A tightly linked 2D/3D interface makes MiniCad+ a modeller of choice.

Database CAD : Let MiniCad+ become your specialized cost estimator by using it to price out projects, create area tables, track manufacturers, create a bill of materials etc., without leaving the drawing area.

Programmable CAD : Why be limited by parametrics? Over 300 powerful graphics and database routines extend MiniCad+ for the advanced user.

New Features in MiniCad+ 4 : Interactive 3D/cavalier & cabinet projections, walkthroughs, fly-overs. Intelligent walls, floors and roofs, auto-creation of 3D models from 2D (hot-linked!), 3D SmartCursor™, tolerancing, definable dash types. A new mode/message bar, a 45 min. video overview, plus many other enhancements make this the easiest-to-use MiniCad+ ever.

\$795

Demo \$19

30 Day Money Back
Guarantee

Graphsoft

Diehl Graphsoft Inc.™

8370 Court Ave.
Ellicott City Md. 21043
410-461-9488 fax 410-461-9345



1989
MacWorld
Award



1990
MacUser
Award



1992
Switzerland/
MacWorld
Award



Circle 46 on reader service card

Unanswered PCPC Calls

I FOUND YOUR RATING OF PCPC'S technical support in the "Low-Capacity Hard Drives" article amusing (August 1992). You rated it "very good," yet the company returned only one of your three calls. You list its repair turnaround time as 5 days. My experience with PCPC has been worse than dismal.

My husband gave me a 45MB Mac-Bottom hard drive for Christmas 1990. Before November 1991, it died. On November 12, 1991, it was mailed to PCPC for repair and I was told that the turnaround time would be 90 to 120 days, not 5 as was stated in your article. As of today, August 5, 1992, I still do not have my hard drive nor the assurance that I will ever get it back! Nor do I even have the courtesy of a response to phone calls and letters.

*Sandy Lavin
Vermillion, South Dakota*

According to Edward Cheffetz, PCPC president, after relocating to Connecticut, PCPC is catching up on returning customers' phone calls and completing repairs. As of October 1, 1992, Lavin had still not heard from PCPC. Readers can call PCPC directly at 800/622-2888.—Ed.

CORRECTIONS

The correct phone number for Security Concepts is 310/576-6279 (Where to Buy, September 1992).

In the upper left hand photo on page 224, the Tennessee student is using a TI 99/4A with a Zenith CRT connected to a VCR ("Separate Realities," September 1992).

Educational Multimedia Concepts' product is called MacPresents Multimedia Presentation Manager (New Products, September 1992).

The telephone number for Nikon Electronic Imaging is 516/547-4355 (MacBulletin, October 1992).

The correct number for applying for the DSSO program is 800/767-2775 (Quick Tips, October 1992).

LETTERS ON COMPUTERS AND EDUCATION

Our September 1992 special issue focusing on the use of computers in education generated a record response from readers. Here are your opinions and comments on the subject.—Ed.

I AM A JUNIOR IN HIGH SCHOOL, and your article hit home with unbelievable accuracy. I previously had the privilege of attending a school in Illinois that had been the home of Apple's many pilot programs. But after I moved to Ohio, I found out what the real America was like, and it disgusts me. Our school spends millions on computers, yet doesn't offer even one computer class! Pouring money into the problem won't help. The people in charge need to understand what they are teaching.

*Peter Bierman
Worthington, Ohio*

AS A STUDENT IN A PUBLIC HIGH school, I am more than aware of the lack of available computer systems. I go to one of the better schools in the city, and there is one coveted Macintosh for all 1200 students. It's a shame that in Memphis we're paying our new superintendent of schools \$140,000 per year

but we can't get a decent computer lab in any school.

In about 20 years, we could see a textbook example of social Darwinism, as the other countries of the world surpass America in economic growth. Let's hope that when those countries get as fat and bloated as we are, they treat their children with a little more regard for the future.

*Jay Higginbotham
Memphis, Tennessee*

I APPLAUD YOUR COVER ARTICLE ON the tragedy of America's lackluster investment in education. Our voting public, in the end, seems concerned only about their own pocketbooks, even if it means stealing the future from our own children. Just as our parents' generation is willing to watch the bankruptcy of the Social Security system, this generation seems happy to ignore the plight of the schools. That a computer maga-

zine could produce a cover story more newsworthy than the average *Time* or *Newsweek* is a special and brave step.

*Mark Cohen
Somerville, Massachusetts*

I AM PERSONALLY DISGUSTED WITH your one-sided approach. Yes, the problems are related to partisanship, but we are still a leading hegemonic power. You cite France and Japan as success stories, but socialism is not without fault, and even Japan is having a shift in ideology with respect to the work ethic amongst its younger generation. If you think America is so bad, why are you still here?

Now that you have joined the ranks of *Time*, *Newsweek*, and the like in your liberal focus on politics, I am canceling my subscription.

*Philip S. Woolf
Madison, Wisconsin*

continues

CRUNCH

PowerPad™ turns your PowerBook into a numeric powerhouse, with features no other 10-key can match:

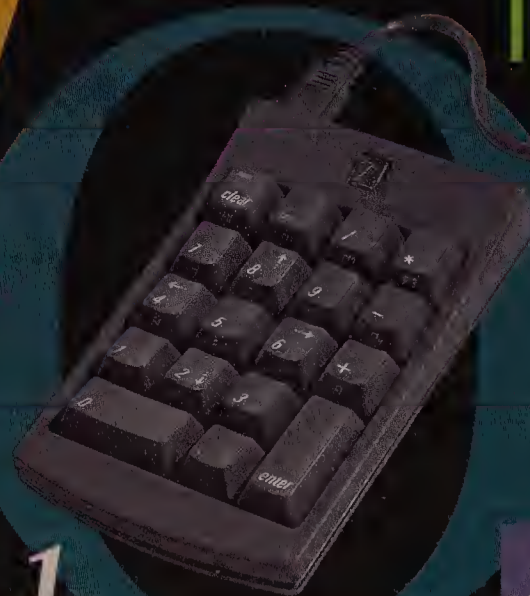
- Interchangeable "+" and "enter" keys can duplicate layout of Mac extended keyboard or traditional 10-key
- New desk accessory, *10Key Tape*, updates the traditional paper tape with edit, auto recalc, save, and print
- Extra ADB port for adding a mouse or other input device
- 24-inch detachable cable makes on-the-road repair easy
- 15 function and 4 cursor keys are available at a touch
- Hard cover protects keys during travel and opens to support ergonomically designed key pad at correct angle

It's the number cruncher's dream. For the PowerPad dealer nearest you, call Sophisticated Circuits today at (800) 827-4669.

For local or international inquiries call (206) 485-7979, or FAX us at (206) 485-7172.

POWERPad

+ | - | × | ÷ | =



© 1992,
Sophisticated Circuits, Inc.
PowerPad is a trademark of Sophisticated Circuits.
PowerBook is a registered trademark of Apple Computer, Inc.

Circle 184 on reader service card

SILVERVIEW™ PRO

A REAL PRO NEEDS TWO FULL PAGES.



Hot news for publishing and

graphics pros! See two full pages on screen at once and make your job easier by light years! SilverView Pro by Sigma Designs—the only 21" flat screen with ultra-precise 1152 x 870 resolution (72 dpi) displaying 256 of the coolest grays on screen. No scrolling. No waiting. Perfect images. Call on the pro — SilverView Pro.

BUILT-IN QUADRA VIDEO SUPPORT

75 HZ REFRESH RATE

LOW-EMISSION™ DESIGN



ENGINEERING THE BEST IMAGES FOR BUSINESS

1-800-845-8086 Ext. 130

Fax: (510) 770-2640

Circle 128 on reader service card

EDUCATION (CONTINUED)

ALLOW ME TO EXPRESS MY EXTREME disinterest in your September cover story as well as all of the other social commentaries that have been appearing in your magazine with depressing frequency lately. It is as inappropriate for *Macworld* to expound on the great social dilemmas of our time as it is for the *Village Voice* to debate the merits of PostScript versus TrueType. Please leave your political opinions out. As the presidential elections of 1968, 1972, 1980, 1984, and 1988 have clearly shown, the great majority of Americans are not really interested in leftist social opinions.

*Todd Breed
Seabrook, Texas*

THE PROBLEM IS NOT LACK OF money, it is lack of will. We have become so self-indulgent, individually and collectively, that we can only think of our own comfort, pleasure, and ease.

*Andy Smith
Custer, South Dakota*

CONGRATULATIONS ON YOUR gutsy assessment of computers and technology within the education system. Fortunately, my two small children are drawn to the Mac like a magnet. They are lucky; they won't need to wait on misguided bureaucrats to bring school computers up to the standards currently enjoyed by Japan, France, and Germany. But I fear that we Mac mommies and daddies are the exception rather than the rule.

*Will Cate
Mountain Park, Georgia*

IN A UNITED STATES WHERE THE rate of infant mortality is high, I would buy pre- and postnatal care before computers. In an America where preschool children face daily neglect, I would buy day care before computers. In a country where the number of children in classrooms is high, I would hire more teachers before buying computers. Where the number of people who cannot add, cannot read, and cannot write is high, I would teach the usefulness of arithmetic, the joy of reading, and the power of writing before teaching any aspect of computer usage.

Those who are now disenfranchised will become less empowered as our society becomes more technological. But technology did not cause the

current problems in education and, although computers may play a role, personal computers cannot solve illiteracy or innumeracy.

*Jeremy Reilly
Landsdowne, Pennsylvania*

YOUR PIECES ON COMPUTER EDUCATION were a shocking display of statist ideology. The premise of government running schools was never challenged. I am an educator, and I fundamentally oppose the federal government's involvement in education. That involvement has produced results such as those in banking, with the savings and loan debacle; the food industry, spending over \$20 million in order to keep prices of food high; and transportation—that is, there is no city in the United States with a subway system even close to that of Singapore. The federal legislators, bureaucrats, and administrators know nothing about education. Get them out of my way, so that I can finally do my job.

*Krzysztof Ostaszewski
Associate Professor of Mathematics
University of Louisville
Louisville, Kentucky*

I AM A COMPUTER-SCIENCE TEACHER in a rural school system, so I can attest to the accuracy of your report. We have too few working computers, a poor selection of software, inadequate teacher training, and very little integration of technology into the curriculum. And while a panel of teachers and community and business leaders prepared a five-year plan that would integrate technology throughout the school system, we have neither the resources nor the political will to implement it. If that isn't bad enough, we are better off than every other school system in the county.

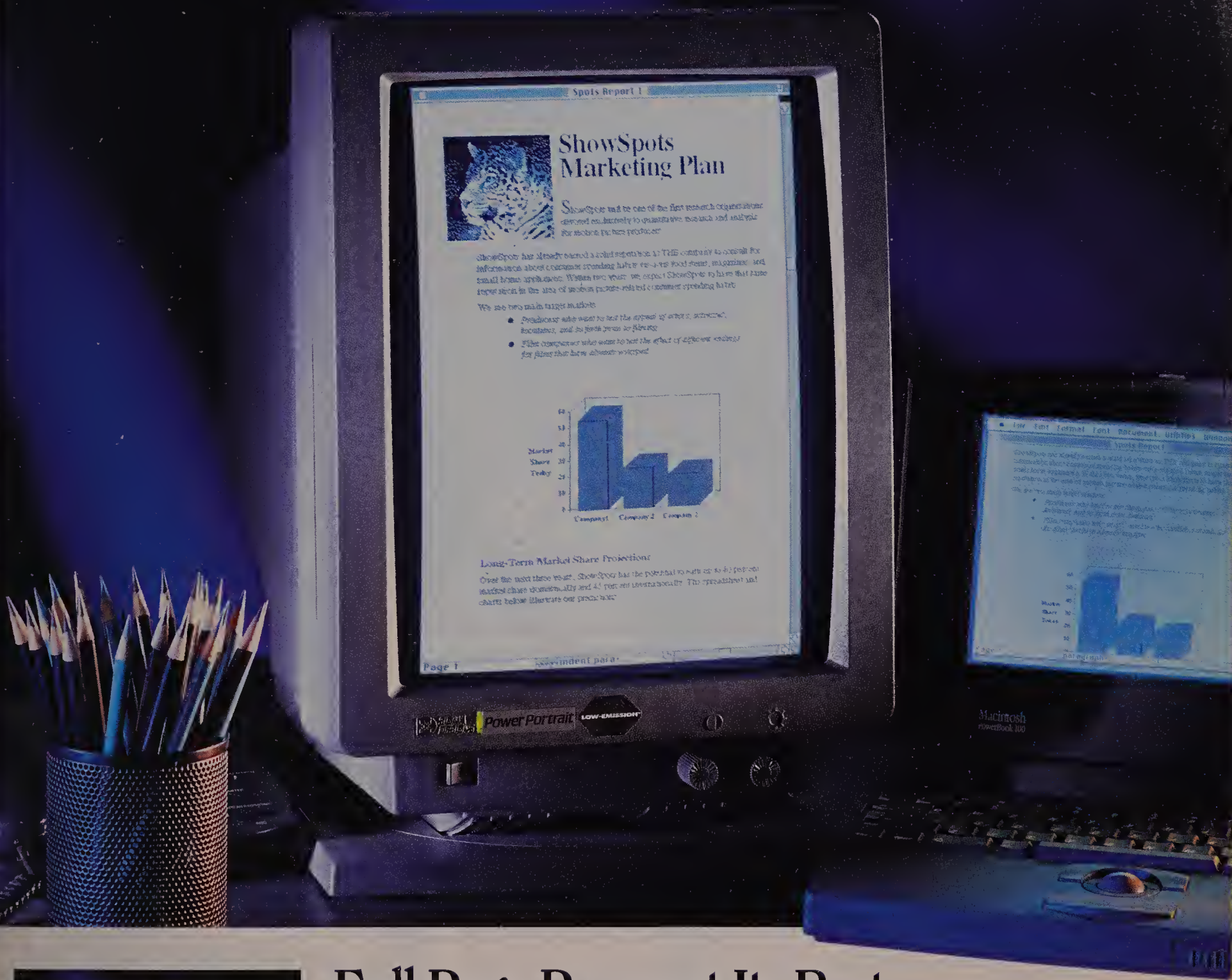
Unless this November brings a major miracle, our federal government isn't going to provide much help to public education. The only real answer is for every person of every community to become involved in the system. Let's make community action "the next thing."

*David Binnion
Hillsboro, Ohio*

IT IS DISHEARTENING TO READ that many schools actually have usable

continues

Just Plug It In!



Full Page Power at Its Best.

Full-page power has never been easier to install or more affordable. Our 15" full-page Power Portrait™ display plugs directly into the SCSI port of your Mac. No cards to buy or install. No loss of slots. No external box. With **Power Portrait**, it's so easy!

Built-in QuickDraw acceleration lets you race through graphic displays and minimize scrolling time. Select 72, 80, or 88 dpi to view your work at its best resolution. Hardware pan lets you create a virtual two-page desktop to power through multi-page tasks. And **Power Portrait** meets the latest Swedish guidelines for reduced VLF/ELF magnetic field emission. **Power Portrait** comes in two coordinated colors, granite or platinum, for a sleek, well-matched look.

Call (800) 845-8086 EXT 100 for details.
You're just a plug away from full-page power!



47900 BAYSIDE PARKWAY • FREMONT, CA 94538
TEL: (510) 770-0100 • FAX: (510) 770-2640



Power Portrait™

Plugs directly into the SCSI port of any Mac Plus, Classic, Classic II, SE, SE/30 or PowerBook. Connects anywhere on the SCSI chain. Complete with cable.

EDUCATION (CONTINUED)

computers, but because of lack of budget to set them up and maintain them, they go unused. I guess that kind of hit home the hardest, because that one problem is well within my capabilities to fix. I have the skills necessary to help. Support groups exist. The need is there. Now I have to do it.

I was surprised that the articles didn't mention CompuMentor or any of the other groups that match computer-literate volunteers to organizations that need computer help.

Steve Stroh
Woodinville, Washington

Readers can check their telephone directories for the local CompuMentor office or call CompuMentor in San Francisco at 800/659-3579.—Ed.

THE SHAME OF YOUR ISSUE IS that it perpetuates the American myth about a good education leading to a good job. Nonsense. Today, people with M.B.A.s, Ph.D.s, and J.D.s can't even find decent jobs, with or without computer literacy. Does every child really need 12 years of education to be employed in construction, banking, insurance, gardening, sales, and scores of other service and clerical jobs? Of course not. Previous generations got along just fine with a sixth-grade education or less. As for "computer literacy," most people can maneuver around a Macintosh in just a few hours.

Paul Allen Boswell
Richmond, California

THE WHOLE EDUCATIONAL SYSTEM is so underfunded that we should have serious doubts about our nation's economic survival. We treat our prisoners better than we treat the students in some of our schools. Those students are forced through school systems that leave them bitter, angry, and uneducated. Small wonder that those students become counterproductive forces in our society.

Ernest Kimme
Vacaville, California

THE UNITED STATES SPENDS MORE per student than do the countries you laud in your articles. Yet you repeatedly point to Washington for more funds for support or training or research. But our public schools cannot even teach the basics of reading and math. Seven hundred thousand high school seniors

graduated this year as functional illiterates. Dennis Hogenson in *Reading Failure and Juvenile Delinquency* has identified that only reading failure relates to juvenile crime, not race or economic status, not age, family size, number of parents present in the home, rural versus urban, religious preference, and so on. Do we need more training for teachers to teach kids to read? No, we need to see results from what we are already spending.

Roy Blocher
Germantown, Maryland

THE BREAKDOWN OF THE FAMILY unit in our society is a direct contributor to computer apathy and illiteracy in the classroom. No million- or billion-dollar educational program will motivate our children. Our children need traditional families with values and committed fathers.

Frederick Rusko
Menlo Park, California

IT IS FAR TOO LATE TO SAY "WAKE up" because nobody is listening anyway. The great and sovereign State of Illinois has made its choice, and public education is not it. Education deals with a lag time of roughly 13 years: anything you do now at the kindergarten level will not be effectively felt until that person has graduated and is making his or her way in the world.

All the manufacturers' and the "schools of the future" programs do is provide plenty of grist for the six o'clock news, to convince Mr. and Mrs. America that something is really being done somewhere. It's not. At best, the present system is creating a tiny, privileged minority of students who happen to live in Park Forest, Illinois, a Chicago suburb where teachers are paid \$60,000 a year and can do anything they can reasonably imagine. At the other end of the spectrum are districts like Beardstown or East Saint Louis, Illinois, which might as well be on the dark side of the moon from Park Forest. In between are the majority of school districts, like ours, muddling along with some computers, but with few trained in their use.

John Avelis, Jr.
White Heath, Illinois

OUR KIDS WILL NOT LEARN EFFECTIVE technological skills until state and

national policy makers transform national priorities toward education. In order for our kids to learn the computer skills needed for survival in the twenty-first century, schools require computers and teachers require training, all of which translates into money. Won't it be nice when schools have all the money they need and the Air Force needs to hold a bake sale to buy a bomber?

Sheldon Smith
San Luis Obispo, California

JERRY BORRELL'S COMMENTARY WAS particularly objectionable because his attack on George Bush was overtly political. A balanced perspective would have noted that the inner cities have been under Democratic control for the past half century and they have deteriorated relentlessly during that time as middle-class families fled their schools by the millions.

If Borrell must involve the federal government somehow, let him do it through vouchers good at all public and private schools so the families who want their children educated in technology can direct their money to schools that offer it, thereby retaining the same principle of subsidiarity that drove the development of the personal computer.

Martin Barrack
Burke, Virginia

YOU ARE ABSOLUTELY ON TARGET with your commentary about the creation of an educational underclass. This underclass will include persons of both sexes, all colors, all levels of physical ability, and other differentiating characteristics.

There are an estimated 37 million Americans who lack even basic health insurance. If they can't buy insurance (in Maryland, about \$1500 per person per year), where do pie-in-the-sky prognosticators expect the money to come from to provide computers at home so that members of the computerless underclass can practice for themselves?

Thomas K. Lindsey
Arlington, Texas

IF I WANT A POLITICAL MAGAZINE, I will purchase one. You have betrayed your readership by meddling in affairs that are out of order for a computer magazine. I was especially offended by

continues

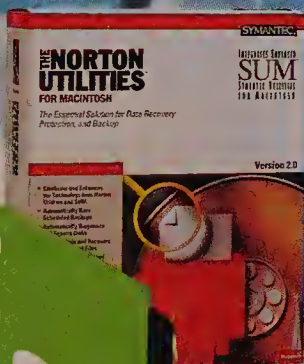
DESKTOP DIAGNOSTICS

SNOOPER

LETS YOU FIND THE PROBLEM



INCLUDES FREE
NORTON UTILITIES 2.0



SCSI TESTS • I/O TESTING • AUDIO TESTS • ERROR LOGGING



DIAGNOSTIC SOFTWARE FOR MACINTOSH

The next time you see a 'sad Mac' on your screen or your Mac's performance isn't up to par, DIAGNOSE FROM YOUR DESK with SNOOPER, the revolutionary new standard for Mac diagnostic and testing tools. Snooper performs a comprehensive suite of tests, CHECKS ALL YOUR HARDWARE and

identifies any problems. And the same SNOOPER software runs on all Macs.

SNOOPER is easy to use and saves time and money. Complete your Mac utilities with SNOOPER, the hardware diagnostic, and until Dec. 31, 1992, get Norton Utilities free.

MAXA Corporation 116 MARYLAND AVENUE • GLENDALE, CA 91206 IN THE US AND CANADA CALL: 800-788-6292

MAXA and SNOOPER are trademarks of MAXA Corporation. Other product and company names are trademarks of their respective owners. ©1992 MAXA Corporation. All rights reserved.

Circle 182 on reader service card

SYSTEM 7 JUST LIKE HAVING

PERSONAL
TRAINING

A PRIVATE TUTOR MICROSOFT

MICROSOFT WORD MICROSOFT WORKS ALDUS PAGERMAKER ALDUS FREEHAND ALDUS PERSUASION 1-800-832-2499 CLARIS HYPERCARD CLARIS FILEMAKER APPLE



POWER DEFINED.



POWER REALIZED.

Unleash the full potential of your Macintosh software investment with PTS. Each tutorial contains an audio cassette with step-by-step self-paced instructions, an interactive practice disk of lessons, Command Summary Card and Extra Practice Card. Our tutorials offer beginning, intermediate and advanced levels of these Macintosh applications:

- | | | |
|------------------------|-------------------------------|-----------------|
| ■ Mac System 7 | ■ AldusPageMaker | ■ ClarisWorks |
| ■ Performa NEW! | ■ Aldus FreeHand | ■ FileMaker Pro |
| ■ Microsoft Word | ■ Aldus Persuasion | ■ QuarkXPress |
| ■ Microsoft Excel | ■ Adobe Illustrator | |
| ■ Microsoft Works | ■ Adobe Photoshop NEW! | |

Call your dealer or PTS at 1-800-832-2499.
Software made easy!

For a FREE color brochure of Personal Training tutorials for Macintosh software, send this coupon to: PERSONAL TRAINING SYSTEMS, 828 S. Bascom Ave., Suite 100, San Jose, CA 95128. Or call 1-800-832-2499.

NAME _____

ADDRESS _____

CITY _____

ST _____

ZIP _____

DAYTIME PHONE (_____) _____

PERSONAL TRAINING SYSTEMS®

© 1991 Personal Training Systems. All rights reserved. Personal Training and Personal Training Systems are registered trademarks of Personal Training Systems, Inc. The following are registered and unregistered trademarks of the following companies: Apple, Macintosh, System 7 — Apple Computer, Inc.; Claris, FileMaker Pro, HyperCard — Claris Corporation; Aldus, PageMaker, Persuasion, FreeHand — Aldus Corporation; Microsoft, Excel, Word, Works — Microsoft Corporation.

Circle 44 on reader service card

EDUCATION (CONTINUED)

your attack on our president just in time for the election race.

*Ralph Neighbour, Jr.
Houston, Texas*

WE SIMPLY CANNOT SLEEPWALK through the social consequences of our marvelous technology. Your publication has stirred many readers to think of things we would just as soon ignore. Regardless of our views, your issue has awakened us. That is good. Many thanks.

*Joe Byers
Lansing, Michigan*

CHARLES PILLER'S ARTICLE, "Separate Realities," provided a balanced and insightful look at computing in public schools. To be honest, I had expected to see yet another manifesto claiming that the federal government had sacrificed our future by not providing a Macintosh on every desk. Several of your other articles took this all-too-familiar tone.

The classroom is a wonderfully complex place where many things come together in the hope that learning will occur. Piller's contribution is to remind us that the key to effective use of computers is the human element—teachers who really want to help their students, students who respond to being treated as intelligent human beings, and administrators more concerned with excellence than conformance.

If you want the kind of changes in education that are necessary for effective computer use, you don't have to wait for the government in Washington to do something. Schools are a local issue and they can be as good as the community wants them to be. I cut out Piller's article and sent it to my local school board. Did you do as much?

*John Boddie
Newark, Delaware*

Letters should be sent to *Letters, Macworld*, 501 Second St., San Francisco, CA 94107, or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (Macworld), or AppleLink (Macworld1). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*. **m**

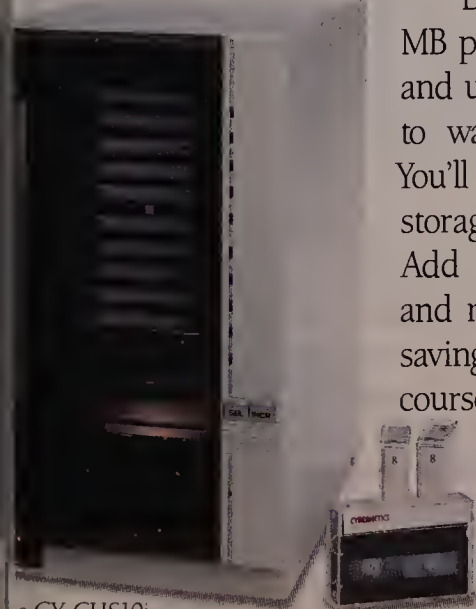
YOU'RE LOOKING AT TWO 8MM TAPE DRIVES.



THAT'S RIGHT.

Our CY-8500 now gives you complete backward compatibility with our popular CY-8200. With the flip of a switch, the CY-8500 can read and write tapes in CY-8200 mode. Making it possible for one tape drive to store between 2.5 and 25 GB, completely unattended. It's like getting two drives for the price of one.

Data transfer rates of up to 90 MB per minute let you backup fast and unattended. So you won't have to wait around to change tapes. You'll save money in reduced media, storage and shipping costs, too. Add hardware data compression and multiply capacity, speed – and savings – by up to five times. Of course, data compression is switch-selectable, so you can read and write tapes without compression for compatibility with other sites.



the CY-CHS10i
features an 8200 or 8500,
tapes, and stores up to 250 GB.

We're pushing the limits of flexibility, making tape drives that will perform exceptionally today – and tomorrow. Giving you true "plug and play" compatibility with the widest range of system interfaces on the market. Plus a clear upgrade path through the product line.

Our complete family of data storage subsystems includes QIC tape streamers, magneto-optical disk drives, 8mm tape drives and 8mm tape libraries.

There's no better value in 8mm tape backup than the

CY-8500. Call today for complete information at (804) 873-9000.

Rock Landing Corporate Center • 11846 Rock Landing, Newport News, VA 23606
FAX 804/873-8836

TRUE "PLUG-AND-PLAY" COMPATIBILITY WITH:

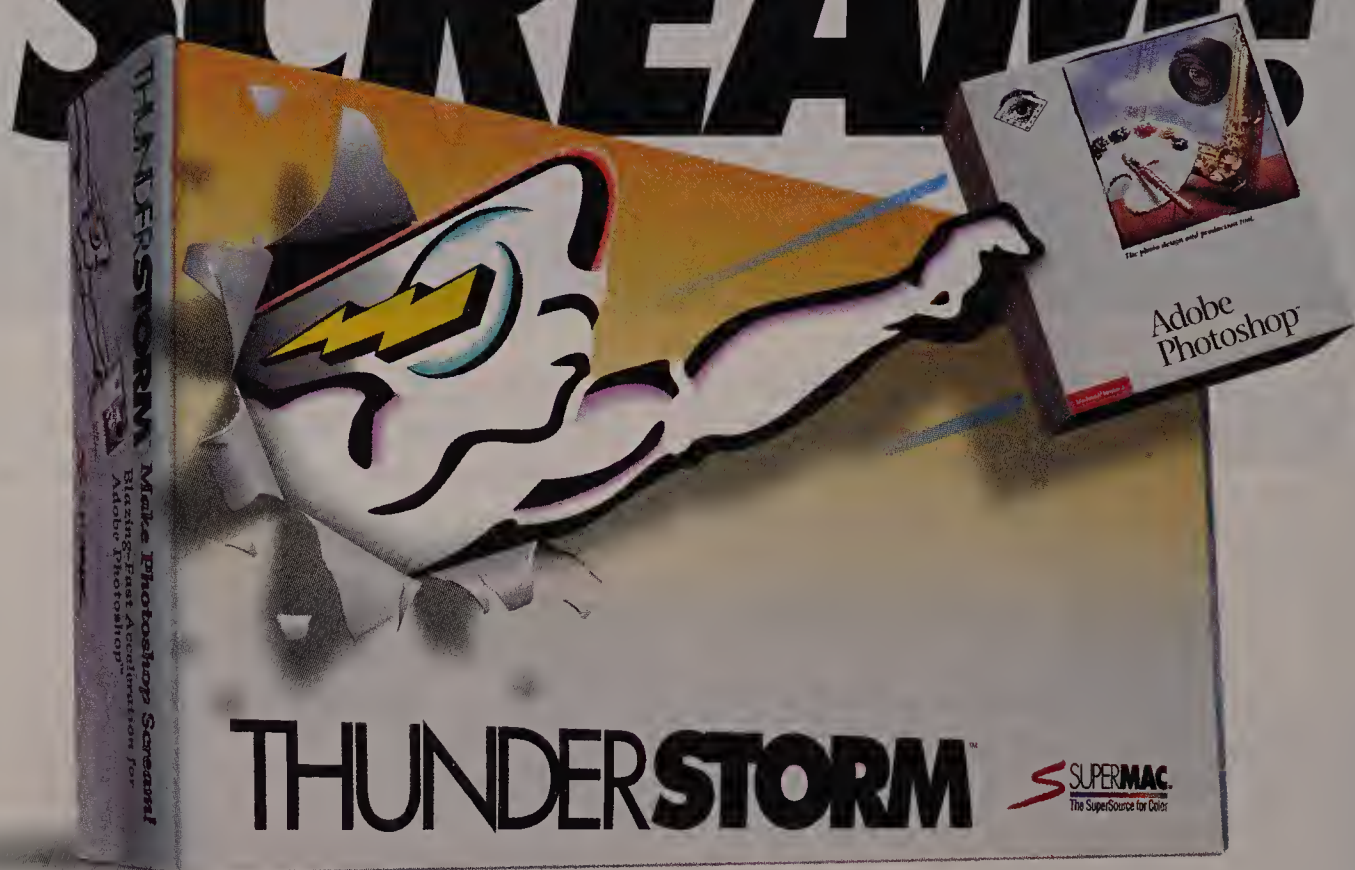
Alliant	Gould/Encore	PS/2
Alpha Micro	HP	PC 386/ix
Aitos	IBM AS/400	PC MS-DOS
Apollo	IBM Mainframe	PC Xenix/Unix
Arix	IBM RISC/6000	Pertec
AT&T	IBM RT	Plexus
Basic-4	IBM S/38	Prime
Concurrent	ICL	Pyramid
Convergent	Intergraph	Sequent
DataGeneral	Motorola	Silicon Graphics
DEC 3100/5000	Macintosh	Stratus
DEC BI-Bus	McDonnell Douglas	Sun
DEC HSC	NCR	Texas Instruments
DEC Q-Bus	NeXT	Unisys
DEC TU/TA81	Novell	Wang
DEC Unibus	OS/2	and more

Europe Tel: +31 8385 51708 FAX: +31 8385 50596 Scandinavia Tel: +47 2 79 58 80 FAX: +47 2 78 36 01
France Tel: +33 88 67 12 45 FAX: +33 88 66 79 19 Japan Tel: +81 3 3639 5841 FAX: +91 3 3639 5865
U.K. Tel: +44 7373 73544 FAX: +44 7373 62813 New Zealand Tel: +64 9 479 1100 FAX: +64 9 479 8009
R.O.C. Tel: +886 2 5068702 FAX: +886 2 5014198 U.S. FAX: 804 873 8836

Circle 188 on reader service card

CONTEMPORARY
CYBERNETICS
Group

MAKE ADOBE PHOTOSHOP SCREAM!



Now, for under \$1,000, ThunderStorm™ accelerates the special effects in Adobe Photoshop™ software by as much as 2,300%. You've never seen such speed — and productivity — from Unsharp Mask, Gaussian Blur, Sharpen Edges, JPEG Compression/Decompression, Blur More, Resize, and more.

ThunderStorm, developed in partnership with Storm Technology, lets you take full advantage of Adobe Photoshop's creative potential across a wide range of design, imaging, and retouching projects. And it will provide even *more* functionality in the future.

With ThunderStorm	Without ThunderStorm
:12 seconds	3:00 minutes
Gaussian Blur	
:15 seconds	6:00 minutes
Unsharp Mask	
:21 seconds	2:15 minutes
Resize	

Performance with 4 MB file on Macintosh IIci

See it in action; it's SuperMac's latest achievement in combining affordability *and* performance in the award-winning Thunder™ graphics family. For more information or location of the nearest Authorized SuperMac Reseller, call **800-334-3005**. For immediate information via fax, call SuperFactsSM: 800-541-7680. (In 408 area, call 524-4797.)

SUPERMAC
The SuperSource for Color

© 1992 SuperMac Technology. All rights reserved. SuperMac, SuperMac Technology, Thunder, and ThunderStorm are trademarks and SuperFacts is a service mark of SuperMac Technology. Storm Technology is a registered trademark of Storm Technology. Adobe, Adobe PhotoShop, and the Adobe PhotoShop logo are trademarks of Adobe Systems, Inc. which may be registered in certain jurisdictions. The Adobe Photoshop front sleeve panel is the copyrighted trade dress of Adobe Systems, Inc., © 1989 Adobe Systems, Inc. All rights reserved.

Circle 88 on reader service card

Art Beat

Behind Macworld's Graphics

BY CATHY ABES

Artist: A professional photographer since 1969, San Francisco-based Charly Franklin decided to buy a Mac last year after discovering the wonders of Adobe Photoshop at a workshop hosted by *Photo Metro* magazine. He found that he could easily produce striking effects with Photoshop—such as compositing numerous photos into one, as he did for this assignment—that would be difficult or nearly impossible to accomplish through traditional methods. “Photoshop gives me a lot of control over my photographs,” he says. “Even if things go wrong, I have another chance to make them right. I can repair photos and do things I wouldn’t even attempt with traditional photography.”

Hardware: Mac IIci with 20MB of RAM; Maxtor 210 internal hard drive; E-Machines TX 16-inch color monitor and 24-bit color board; SyQuest 44MB removable-cartridge drive.

Software: Adobe Photoshop 2.01.

How It Was Done: For the photograph that opens the feature “Your Computer Revealed: Expanding the System,” Franklin took a series of photographs and scanned each of them into Photoshop at 3000 dpi. He began with the two background photos: the beach and the grassy hill. After removing the people and debris from the beach, he outlined the hill (by making an alpha channel mask) and dropped it into the beach photo.

He then used the Color Balance command, from the Adjust menu, to make the grass more blue to blend with the sky. (Franklin used Color Balance, rather than Hue/Saturation, because it gave him more control over individual colors, allowing for more subtle adjustments.)

Because the composited background file was large and unwieldy, he saved just

the portion he needed to work on—the hill and a bit of the sky—to a separate file that took up a less-cumbersome 20MB. He then saved a low-resolution version of the rest of the file scaled to the size of the newly created high-res file and aligned them one over the other; by (virtually) splicing together the top and bottom portions of the background he could position the scans of various hardware devices in relation to the complete image while actually working on a smaller file.



The final composite photograph that appears on page 232.

Franklin shot three photos of each piece of hardware—at different angles and distances. The first shot was taken at about 6 feet away, the second at 8 feet, and the third shot at 10 feet. He made sure to photograph each piece in front of the background it would be placed against in the final

image: the larger images against the grass, the smaller images against the sky. After scanning these images, he reduced them to the appropriate sizes, then outlined each one with a 1-pixel feather to make an alpha channel mask, and dropped them one by one into position against the background. He used the blur tool to soften the edges around each piece of hardware and blend them into the background.

Because of time constraints, Franklin was forced to shoot the Logitech ScanMan hand scanner in his studio. Consequently, in the original photo and scan, the scanner’s viewing window appeared solid black, reflecting no sky or clouds. To make it look as if it had been photographed outside, like all the other hardware, he copied the reflection on the screen from the LCD projection panel, flipped it, stretched it, and pasted it onto the ScanMan’s viewer window. He then heightened the contrast a bit so the reflec-

continues



BETTER PRINTING SOLUTIONS

POWERPRINT™

Now you can use your Mac® to print to over 1000 non-Apple® printers! Portable printers for PowerBooks™. Wide carriage printers. Inexpensive printers. Or just about any other laser, inkjet, or dot matrix printer you want access to at home, office, hotel business centre or airport lounge.

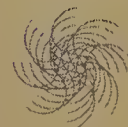
BETTERWRITERS™

Now you can use your ImageWriter® or StyleWriter® more efficiently! BetterWriters offers built-in spooling, faster and more intelligent printing, and LaserWriter®-like features.

PowerPrint and BetterWriters are compatible with just about anything and has the driver features you want.

- System 7™, TrueType™, Adobe Type Manager™, A/UX®, etc.
- supports color, bins and trays, duplex printing, etc.
- built-in spooling, reduction and enlargement, custom paper sizes, smart forms and label printing, enhanced greyscales, etc.

Both products are also available in network versions for easy sharing of any connected printer over AppleTalk® or EtherTalk® without additional hardware.



GDT Softworks Inc.

4664 Lougheed Highway, Suite #188
Burnaby, BC Canada V5C 6B7

604-291-9121
800-663-6222 (orders)

604-291-9689 (fax)
AppleLink:GDT.MKT

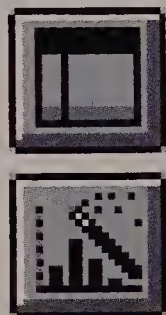
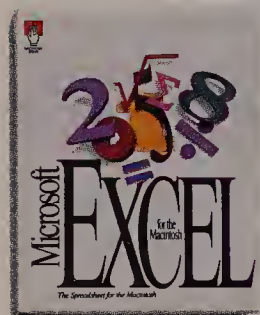
All product names are trademarks or registered trademarks of their respective holders.

Introducing Microsoft Excel spreadsheet today, because

We've been making Microsoft® Excel for the Mac® since 1985. Which is probably why we've gotten pretty good at making both routine and complex spreadsheet tasks easy to do.

Take our new Microsoft Excel 4.0. We've added floating Toolbars. Including six new ones which sensibly relate to a set of tasks, such as charting. You can move them around, resize them, and customize them easily.

With Drag and Drop, you can "grab" a piece of information with your mouse and drop it wherever you'd like to see it



on-screen. No need to cut-and-paste.

Autofill intelligently helps you build a worksheet.

Type JAN in a cell, for instance, and

Autofill enters FEB,

The new Autoformat button formats an entire worksheet in one step. The Chart-Wizard buttons make charting a snap.

MAR—as many months as you need.

And meet Wizards, step-by-step guides that walk you through complex tasks. The CrosstabWizard, for example, creates summary tables from a database for you: it prompts you, takes the information you give it, and creates a cross-tab. It's that easy.

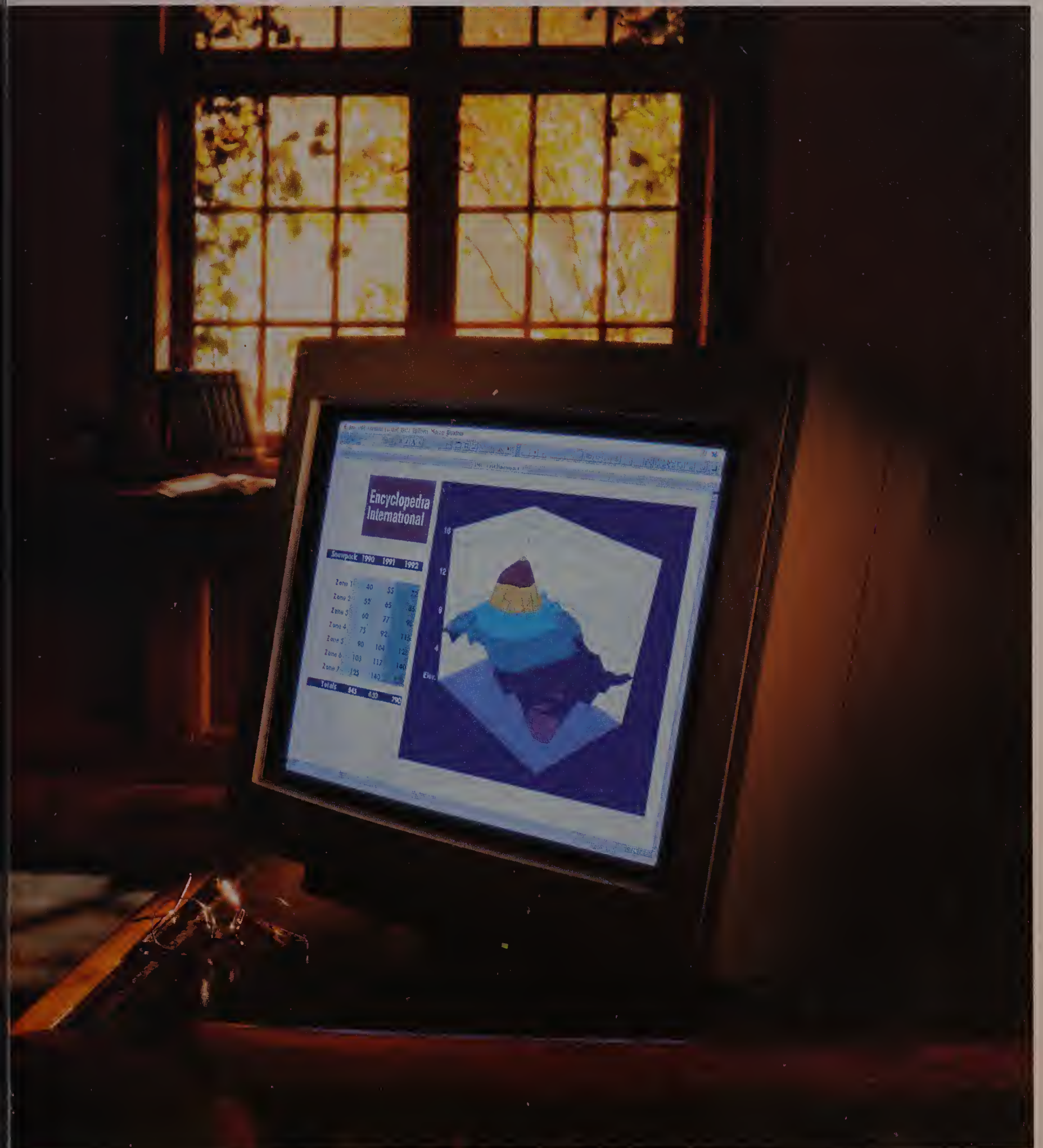
To sum up, if you want the most significant Microsoft Excel upgrade ever, call (800) 992-3675, Dept. B36. And see why the older you get, the smarter you get.

Microsoft®
Making it easier



The gallery of 90 chart types includes new rotated

Excel 4.0. It's the smartest because it wasn't born yesterday.



Charts, along with surface, radar and picture charts. With the help of the ChartWizard, you can look like you were born making charts.

© 1993 Microsoft Corporation. All rights reserved. Microsoft, Excel, and the Excel logo are registered trademarks of Microsoft Corporation. Mac is a registered trademark of Apple Computer, Inc.

Buy Low. Send Fast. With TWINCOM **DATA+FAX** modems for Macintosh®



If you modem or fax large documents and demand the highest speeds — the TWINCOM 144 Pro is a solid investment for you. Achieve data speeds of up to 57,600 bps and yield big dividends in time savings and reduced phone bills.

For data+fax capability on the run we have the 24/96 COMMUTER — a 2,400 bps data modem, with send and receive fax capability. For home, office and away, it's the perfect companion for any Macintosh.

Got a PowerBook®? The 24/96 PowerTwin is a 2,400 bps data modem with send and receive fax. For maximum performance, the 144 PowerTwin provides 14,400 bps, the ultimate in super fast data+fax.

Call now: **800-723-2962**



is an American modem manufacturer that supplies innovative and award winning communications products to end users and corporations worldwide.

Macintosh Division
Wilmington, NC
© 1992 TWINCOM

All products and company names are registered trademarks of their respective companies.

tion would look slightly different from the original. He also pasted a small piece of the same reflection onto the smaller Scan-Man in the distance.

Franklin was able to photograph all the hardware pieces—except the SyQuest removable-cartridge drive—on stands, which could easily be masked out in Photoshop. The SyQuest had to be held up by hand. To obliterate the part of the hand overlapping the drive, he copied several small sections of the drive and pasted them successively over the hand. (He used several small pieces rather than one large piece to get a more varied, and therefore more natural, texture and color.)

Franklin used two different tech-



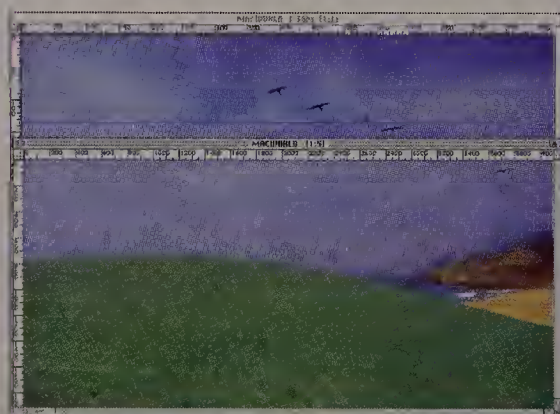
The original scan of the beach and sky photo.



A cropped version of the scanned hill photo.



Franklin combined the two background images in Photoshop by outlining the hill and saving it in an alpha channel, then placing it over the beach image.



To create a smaller working file, Franklin saved the lower two-thirds of the background as a separate file and placed it just below a scaled-to-size low-resolution version of the top portion (which Franklin used for positioning).

niques for the shadows. For the tiny ones in the distance, he drew simple shapes and filled them with black at 50 percent opacity using an 8-pixel feather. Franklin knew this process would work fine in the background where the grass looks like a green blur, but not in the foreground, where individual blades of grass are easily discernible. So for the four foreground shadows, he used the actual scanned-in shadows, outlining each one and dropping it into the background, where he made various slight adjustments—to color, shape, brightness, contrast, and size.

The final file size was 33.5MB; the photo-manipulation process, excluding photography, took roughly 20 hours. **m**



Because the hand scanner was shot in the photographer's studio and not outdoors as the other peripherals had been, its viewer window appeared solid black; to simulate the reflectivity of sky and clouds an outdoor shot would have captured, Franklin copied the reflective screen from the LCD projection panel and pasted it over the viewer window.



While all the other hardware peripherals were photographed on stands (which were then easily masked out in Photoshop), the SyQuest drive had to be held up by hand.



Franklin obliterated the hand by successively pasting small pieces of the drive over it.



COMPRESS EVEN THE LARGEST IMAGES IN RECORD TIME WITH MIRROR QUICK!™



Mirror Quick!™ JPEG
Accelerator Card
\$599

What a miracle it is to have color scans on the desktop. What a pain it is to deal with them (up to 50MB of disk space gobbled up with a single scan). • That's why Apple put JPEG compression in QuickTime. JPEG, the world standard in graphic compression, crunches files at a ratio of 20:1. Unfortunately, Apple's JPEG solution is software-based and is as slow as cold tar. • Mirror to the rescue; for just \$599 the new Mirror Quick! accelerator card will speed up JPEG compression over ten times. Yes. Ten times. • Just plug it into a NuBus slot and its second generation C-Cube 550B

processor gets compression moving at record speeds. Faster than anything in the market (See chart). • Any application that supports QuickTime JPEG can take advantage of the Mirror Quick! board. The performance enhancements are not limited to still images. For the first time you can use JPEG compression on your QuickTime movies (instead of the much lower quality Video compression), and achieve dramatically improved image quality *and* higher frame rates.

Don't waste another minute, start saving time, disk space and money with the Mirror Quick! JPEG accelerator. Call us Quick!

MIRROR

Buy Direct: 1-800-643-0635
30-day "Love it or return it" guarantee

MEDIA: 1030



*Average for a variety of file sizes; with Apple QuickTime set to 100. Performance comparison conducted by EA Research, San Ramon, CA. Quick! is a trademark of EA Research, SuperSqueeze is a trademark of SuperMac Technologies, QuickTime is a trademark of Apple Computer, and StormCard is a trademark of Storm Technologies. Prices are F.O.B. origin. Prices are for U.S. orders only; call for international pricing. All prices subject to change. Technical Support Hotline: 1-612-633-2105 Telephone: 1-612-633-4450 FAX: 1-612-633-3136 Address: 2644 Patton Road, Roseville, MN, USA 55113

Circle 122 on reader service card

NEW NORTON UTILITIES. GREATER THAN THE SUM OF ITS PARTS.

More than simply combining SUM and the Norton Utilities, we made it faster, more powerful, and easier to use.

Talk about a win-win proposition. Now you can get the most comprehensive data protection and recovery features for the Mac in a single box. Plus, some innovations that make Norton Utilities 2.0 the very best way to protect your data.

The Ultimate In Data Protection.

Using simple menus and icons, Norton Utilities 2.0 combines the technologies from SUM and Norton Utilities to guide you through the best and worst of computing times.



Now you can diagnose problems and restore data—with one product from the master of data recovery, Peter Norton.

To start, the Norton Disk Doctor® is in and it's more powerful than ever. It automatically diagnoses damaged hard drives and floppies, identifying and repairing both common and uncommon disk errors.

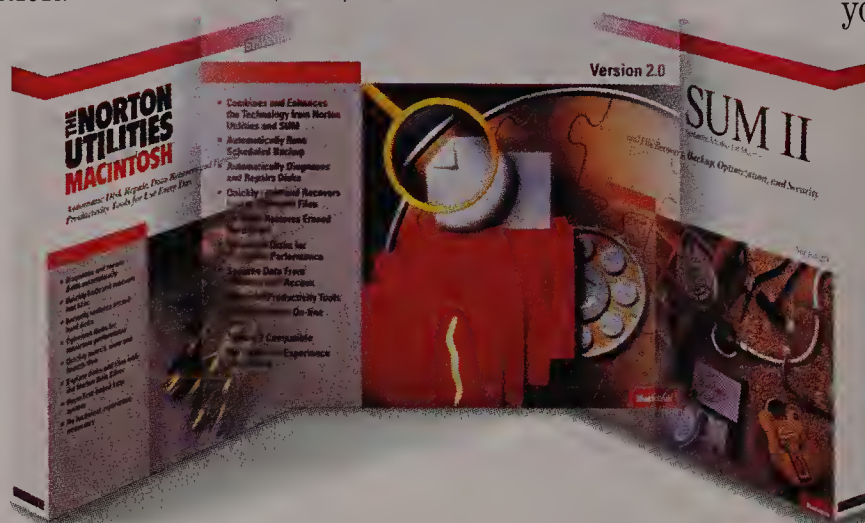
Say you've accidentally erased an important file, the enhanced UnErase® will dig deeper to recover it. The improved

THE NORTON UTILITIES FOR MACINTOSH

The Essential Solution for Data Recovery, Protection, and Backup

SYMANTEC

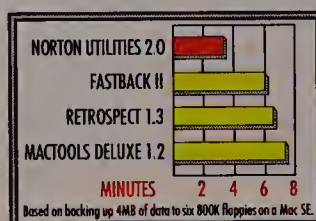
INTEGRATES ENHANCED
SUM
SYMANTEC UTILITIES
FOR MACINTOSH



Volume Recover searches farther and wider to find lost or damaged data.

All This And Fast Backup, Too.

Of course, the first line of defense against data loss is reliable backup. Our fast and flexible Norton Backup makes it easy. Use the scheduler to plan automatic backups from one or more volumes. Its data verification and error correction



Norton Backup lets you quickly and easily make backups of single files, folders or large volumes.

codes ensure the integrity of your files. To make the most of your Mac's performance, check out Speed Disk™, the fastest and safest way to defragment your files and optimize your hard drive.

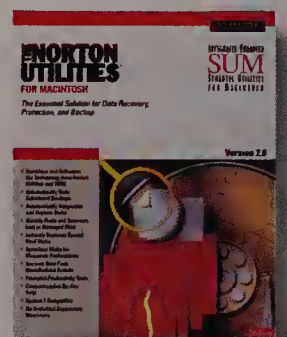


Speed Disk™ accelerates your disk drive performance without risk.

Not Just The Best Product, The Best Value.

The new Norton Utilities for Macintosh. It's everything you've come to expect from the top two Mac utilities. Plus, all the security, productivity, and system enhancements you'd expect from Peter Norton. In one box. Now what

could be greater than that? To upgrade your existing SUM II or Norton Utilities for Macintosh for just \$39*, call 1-800-343-4714 ext. 754-G.



Trouble in Finder City

BY STEVEN LEVY

REMEMBER THE GOOD OLD days. We would sit on the porch swing, drink fresh lemonade or cheap bourbon (none of those wine coolers!), and talk about Harry Truman. Every so often a DOS guy would walk by the house. You could tell those DOS guys by their suits.

When a DOS guy went by, Ma and Junior and I would get off the porch swing, lean over the railing, and razz the heck out of the poor bastard. "Yo DOS guy!" we'd yell. "How's your interface these days? Still using that *consultant*?"

You see, back in the old days—I'm talking mid-eighties, when you could just look at a fellow's computer and know what he was made of—those DOS guys all had consultants. Had to. The only folks who could get to first base with DOS were wireheads and bureaucrats. You just about needed a soldering iron to copy a file. That's where the consultants came in. You'd hire one of these dweebs to take the one or two applications you used—your spreadsheet and word processor, probably—and he'd write something that let you sit at your computer and get you right there, without dealing with DOS at all. First thing you'd see when you sat down was a little menu that let you copy a file, or rename one, or go straight to WordStar or Lotus. The thing was called a shell.

We thought it was a hoot. We were Mac guys. We had the Finder, written for real people. All you had to do was wave the mouse around and point to a picture on the screen and what you wanted to do, got done. Didn't need a *shell* to protect us. Who'd want a computer operating system that you needed to be protected from? DOS guys, that's who. So when they passed by, we'd hoot at them. "Shells!" we'd howl. "Shells!" And they'd turn all sorts of colors and hunch their heads down into their padded suit-shoulders. They were mortified, just like they should have been. Wouldn't know user friendly if it chewed their leg off. Not without a shell.

Those days were something. Not like today. You'd never say today was something. A lady at the user group last week put her finger on it, "There's trouble in Finder City," she said. A vein just about

popped out of her neck as she said it. Lady had a point. Trouble in Finder City.

It's been bothering me for quite a time, but I didn't want to come out and say it. Didn't want to give the DOS guys the satisfaction. But now I can't avoid it. Last summer I packed Ma and Junior in the three-quarter-ton and we headed to the Macworld Expo. And what was Apple showing at its booth? A new program called At Ease. You install it in your Mac and instead of seeing the desktop you get these pumped-up icons representing your applications and documents. To open 'em you click on 'em—not a good old-fashioned double-click, but a fancy-pants single-click. (What ever happened to old-time religion?) You can't rename files, or toss 'em in the Trash Can. You can't do much of anything, and you know why? It's a shell. A shell for the Finder!

Used to be that when everything else went to hell, you could depend on the Finder desktop. Now we need to be protected from it, like it's some sort of disease. Like it was DOS. As soon as I saw those Apple-oids at the booth single-clicking with At Ease, I had to throw my lot in with the user group lady. There's trouble in Finder City. With a capital T.

Birth of the Finder

I DON'T KNOW IF YOU CAN REALLY blame Apple for it. We all know the Mac's been shooting up like corn in August—more power, more disk space, more everything. Because of that, the Finder hasn't been itself for quite a while. Back when those young Apple-heads first whipped up the Mac—1984, when John Sculley had barely stopped peddling sugar water—the machine had but 128 kilobytes of memory, and hard drives were the kind of thing you'd see on "Star Trek." It didn't matter that pointing and clicking from one folder to the next couldn't move you too fast, because there was nowhere to go, really. But then Macs got more memory, and hard drives came, and got bigger and bigger and bigger. It became harder and harder to get around on the darned

thing. And if you weren't careful, all the files you made would pile up, or find themselves in strange folders, or somehow get misplaced, and soon Finder-cleaning became a regular chore, like cleaning the closets every spring.

And besides that, people wanted more on the Finder, more bells and whistles. Crazy utilities. Alarm clocks that could go off a year from when you set them, and screen savers, and virus fighters, and scrapbooks with multiple files, and address books, and picture browsers, and macros—macros!—and even something that put a moose on your screen, a stupid-looking moose that said dumb things at prearranged intervals.

And by then we had multitasking. One application at a time was not enough for us. We wanted to do everything at once. But that just messed things up more.

Then there got to be the problem of *finding* things. (A Finder's got to find.) A graphical interface like the Finder was fine when you only had a few levels of files and folders, but when you had hundreds of files in dozens of folders, you'd go nuts trying to locate the one you wanted. You had to buy a utility to do the finding. (I always had a sweet spot for On Location.) Things got so, even when you knew where a folder was, it wasn't easy to get to it—you had to do so much pointing and clicking that you almost began to envy those DOS guys who could just type in a file name and get what they wanted.

The folks at Apple saw the trouble in Finder City, but they promised us that everything was going to be all right. They would gussy up the whole business when System 7 came out. And so they did—gave it a thorough dusting. It was a system for power users. We could stick in desk accessories without using that clunky installer. (Never took a shine to that program, anyway.) As many DAs as we wanted. And we could throw in regular apps and even documents under the Apple menu. We could find things then—though the Find File command was so downright wimpy

continues



*With
At Ease, the
Mac goes
to shell and
back*

that you still needed your utilities. But this new Finder had the Alias function, which let you clutter up your desktop with copies of copies of copies of copies so you would never be too far from a file you really needed.

7's Deadly Sins

YEAH, THE SYSTEM 7 NEW FINDER had lots of snappy features. But it was more complicated than anything that came before it. (I'm not even going to talk

about how much space it took up—don't get me going on that.) Consider the Trash Can. What could be simpler than a trash can to delete files? You drag a file to the Trash Can and it's gone! Well, in this new version, the trash doesn't get taken out unless you ask for it to happen. Now we hear stories all the time of people with no room on their hard drives because they didn't know that the Trash Can kept getting stuffed bigger and bigger. They had no idea that the trashman didn't come

each time you put some refuse out. (I never had this problem, since in my town you have to haul your own garbage to the dump.) Apple told people about it, but since the System 7 manual is about the size of the Old Testament, they never got to that part!

And the trash story doesn't end there. Some slick hackers actually wound up writing utilities to manage the Trash Can. You can have the trash go out by the kind of file it is, or how long it's been drawing binary maggots in your Trash Can icon. Can you believe it? A utility for your trash can!

Me, I still keep coming across things in the System 7 Finder that jack up my blood pressure. What drove me nuts for months was this problem I had saving files. I'd press the command for save, and then the dialog box wanted to know what folder I wanted the file to live in. So I'd navigate to the folder I wanted, like I was playing some adventure game like an overheated 15-year-old. (Junior has a fondness for D & D.) When I was finally ready to save, I'd try typing in the name of the file—but the Mac would think that I was still looking to find a folder, and would read my typing as if I were locating a file. I had to reach the mouse, move the cursor to the file-naming line, and then click. (Finally, while talking to one of the folks working at Apple, I learned that hitting the tab key would do the same thing—I guess if I'd have read that slick, Bible-size manual I would have figured it out myself.)

And then there's this business of INITs. Every time I turn the machine on, a row of them flashes on the bottom of the screen, sporting their icons like billboards off the interstate. Half of the icons I don't even recognize. But I know they're in there—almost every time I try a new program, I get a darned bomb box on my Mac, and have to relaunch the program with all the INITs turned off. And of course there are utilities to solve *that* problem, too, with names like Conflict Catcher. Why didn't Apple catch the idea that all these INITs were going to have these conflicts? It breaks my heart to think about those INITs, shoehorned into RAM like cats in the same alley, squirting memory blocks to mark territory and scratching each other's eyes out when one dares cross another's line.

Ease-y Does It

SO WHILE THE FINDER IMPROVED, IT got more and more tangled. No one's more of a Mac guy than I am, but I admit to some bad moments last year when I brought in some folks to see the pride of *continues*

To Go Forward, You Must Backup

"The high-end backup standard against which all others are judged."

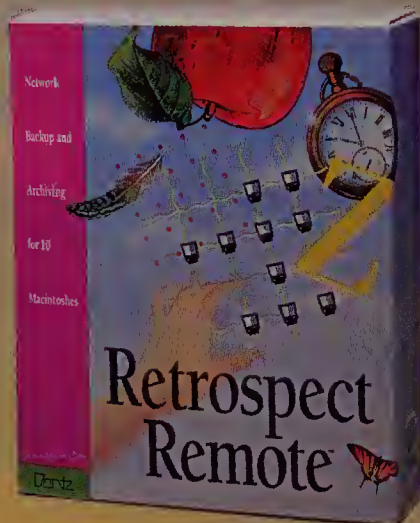
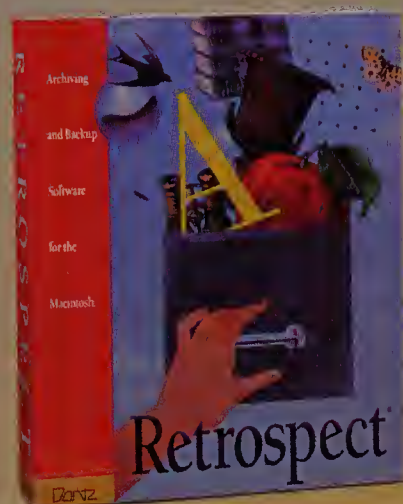
—MacWEEK, Dec. 1990

"If you are looking for a fast backup system that can help you effectively manage the backup process, we recommend Retrospect Remote."

—MacUser, Aug. 1991

"Because of its profusion of features, Retrospect Remote is the cream of the network-backup crop."

—Macworld, Nov. 1991



Dantz

DANTZ DEVELOPMENT CORPORATION

1400 Shattuck Avenue, Berkeley, CA 94709 • 510/849-0293 • 510/849-1708 FAX

AVAILABLE AT RETAILERS AND MAIL ORDER OUTLETS WORLDWIDE

Circle 26 on reader service card

STATISTICA/Mac

NEW rel. 3.0

STATISTICA/Mac™ A complete statistical data analysis system with hundreds of presentation-quality graphs integrated with all procedures ■ In-depth, comprehensive implementations of: *Exploratory techniques; Descriptive statistics; Frequency tables; Large selection of nonparametric tests; Stepwise multiple regression methods with extended diagnostics; General nonlinear estimation (with predefined or user-specified models); Logit/Probit analysis; General implementation of ANOVA/ANCOVA/MANOVA/MANCOVA (designs of practically unlimited complexity, repeated, nested, incomplete, random, changing covariates, contrast analyses, post-hoc tests, custom designs); Discriminant function analysis statistics; Canonical analysis statistics; Time series modeling techniques with forecasting; Factor analysis with rotations; Cluster analysis (incl. hierarchical, k-means, and 2-way joining); General survival/failure time analysis (incl. life tables, group comparisons, and regression models); Distribution fitting (a large selection of continuous and discrete distributions); Curve and surface fitting and smoothing (incl. spline, DWLS, NEXP, and others); and much more* ■ Manual with comprehensive introductions to each method and step-by-step examples (Quick Start booklet explains all major conventions); Balloon help ■ Extensive data management facilities: a super-fast spreadsheet of unlimited capacity with formulas (and Publish and Subscribe); merge/split files; "double identity" of values (numeric/text); BASIC-like data transformations programming language; Import/Export data and graphs from/to Excel, MacSS, CSS and other formats ■ Graphs integrated with all procedures (e.g., click on a correlation coefficient to produce the corresponding scatterplot and other graphs; click on a variable in the descriptive statistics table to produce a histogram and other graphs; click on an interaction effect in the ANOVA table to see a plot of interaction) ■ Large selection of 2-dimensional graphs: *Histograms (incl. multiple, clustered breakdowns, overlaid functions), Scatterplots (incl. multiple, weighted frequency, bootstrapped, function fitting), Multiple line and Range plots, Trend plots, Standard deviation plots, Data sequence diagrams, Contour plots, Box-and-whisker plots, Column plots, Bar graphs, Double pie charts, Scrollable dendrograms, Two-way matrix plots, Curve fitting plots, Distribution comparison plots, Range plots, Probability plots, Amalgamation plots, Factor space plots, Casewise outlier and residual diagrams, ANOVA interaction plots, Multivariate (multiple) matrix plots, exploratory Draftsman plots with histograms, and many other specialized plots* ■ Large selection of 3-dimensional graphs: *3D surface plots (with data bootstrapping procedures, color or gray-scale shading, and projected contours), 3D scatterplots, 3D block scatterplots, 3D axis (space) plots, 3D spectral plots with adjustable planes, 3D line/ribbon plots, 3D sequence block plots, 3D histograms, surface-smoothed frequency plots, and 3D range plots ("flying boxes")* ■ All plots displayed in true perspective, feature interactive real-time rotation facilities (incl. continuous rotation) ■ Extensive graph customization options: all structural aspects of graphs (axes, scaling, patterns, colors, sizes, styles, regions, perspective, rotation, fitted functions, etc.); MacDraw-style tools with specialized "objects"; on-screen graph and artwork embedding; page layout/preview; dynamic rulers; Publish and Subscribe graph links ■ All output displayed in Scrollsheets™ (dynamic, internally scrollable tables: all numbers can be instantly converted into a variety of screen customizable, presentation-quality graphs) ■ All Scrollsheets can be saved as data files and used for input, or exported ■ Flexible facilities to perform analyses on specific subsets of data ■ Extremely large analysis designs ■ Unlimited size of data ■ Extended precision ■ Unmatched speed (e.g., on a Mac IIx, arbitrary rotation of a surface with 1,000 points takes 1 second; correlation matrix 50x50 with 100 elements—less than 3 seconds; transposing a 5,000 data points file—less than 2 seconds) ■ Full support for System 7 ("savvy") incl. "Publish and Subscribe," AppleLink, balloons, "drag and drop," 32-bit, Quadra cache, etc. ■ Price: **\$595.**

Quick STATISTICA/Mac™ A subset of STATISTICA/Mac ■ All basic statistical modules of STATISTICA/Mac (*Basic and Descriptive Statistics, Frequency tables, Exploratory data analysis, Nonparametrics, Distribution Fitting, Stepwise multiple regression; ANOVA/ANCOVA*) ■ Manual with comprehensive introductions to each method and step-by-step examples (Quick Start booklet explains all major conventions) ■ All data management facilities of STATISTICA/Mac ■ All graphics facilities of STATISTICA/Mac (including interactive rotation of all 3D plots, extensive on-screen graph customization facilities) ■ Price: **\$295.**

DOS versions also available (can exchange data with Macintosh versions): STATISTICA/DOS™ **\$795**; Quick STATISTICA/DOS™ **\$295.**

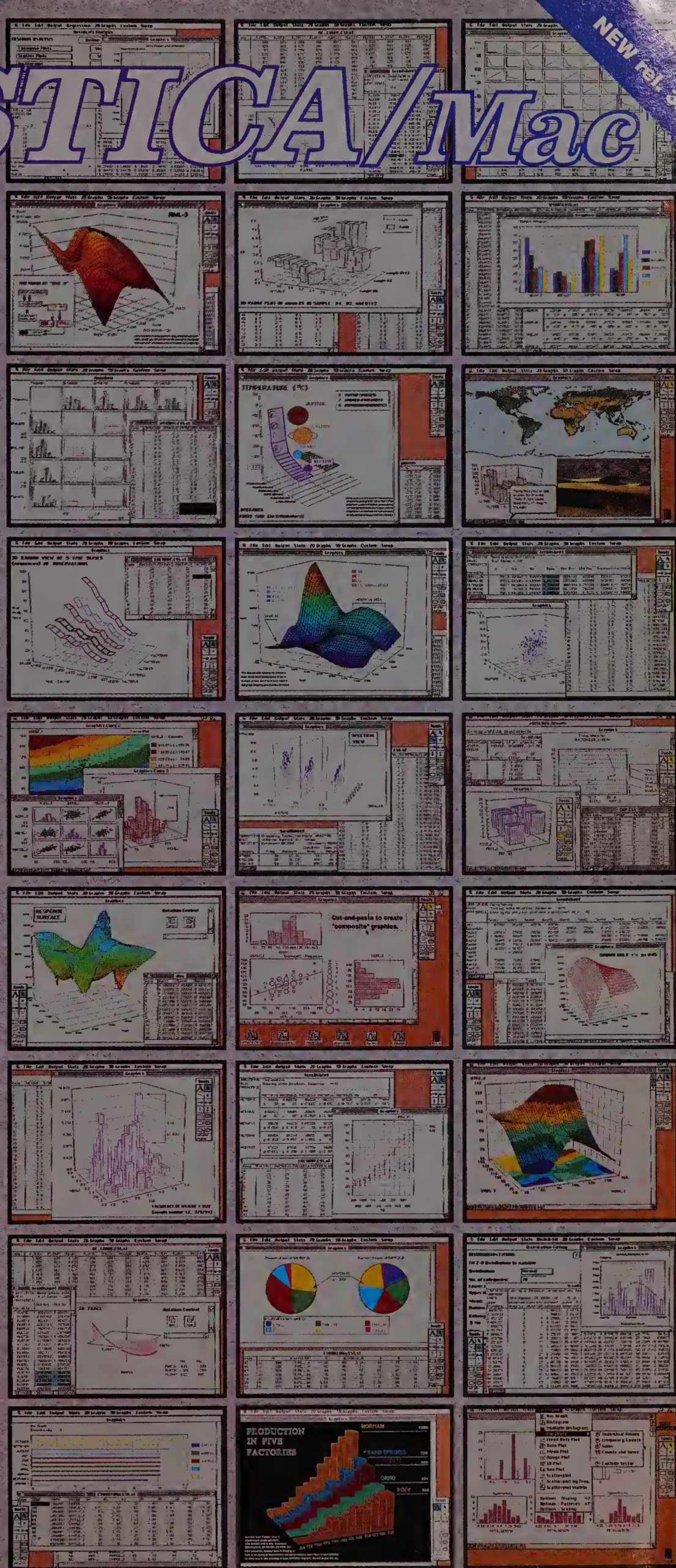
Respective sh/h \$7 per product; please specify type of computer with order; 14-day money-back guarantee.

StatSoft™

25 E. 13th St. • Tulsa, OK 74104 • (918) 583-4149
x: (918) 583-4376

Foreign Offices: Statsoft of Europe (Hamburg, FRG), ph: 040/4200347, fax: 040/4911310; StatSoft UK (London, UK), ph: 0462/482822, fax: 0462/482855; StatSoft Pacific (Melbourne, Australia), ph: 0663 6580, fax: (03) 663 6117; StatSoft Canada-CCO (Ontario), ph: 416-849-0737, fax: 416-849-0918; Available From: CORPORATE SOFTWARE and other Authorized Representatives Worldwide; and: MAB Julsing, 071-230410; France: Version US (1) 40590913; Sweden: AkademiData 018-240035; Hungary: P&D Soft KFT 185-6868; Belgium: TEXMA 10 61 16 28; South Africa: Osins 12 663-4500; Iran: Three's Company, Inc. 03-3770-7600

StatSoft, STATISTICA/Mac, STATISTICA/DOS, and Scrollsheet are trademarks of StatSoft, Inc.; Macintosh, Mac IIx, Excel and MacDraw are trademarks of their respective companies.



my desktop. These folks were green, never touched a computer, and I thought I would show them how simple my Mac is to use. I flicked it on, and began explaining, but by the time I got to the INITs and control panels and aliases and hierarchical levels, they began looking at me like I was some beetle-headed technoweenie. Like a DOS guy!

I guess it's no wonder that Apple finally came out with a shell. Still, it breaks my heart. Not long after that Expo, I

called on a nice fellow at Apple named Dave Pakman, the product manager for At Ease. When speaking of At Ease, he didn't use the word *shell*, of course. "It's a friendly desktop that replaces the Finder," he said. "It's directed to the home and education market and for people new to the Mac. It helps ensure success for novice users."

"Are you saying, Dave, that the Finder isn't friendly?" (He's a nice fellow, but I couldn't help but rub it in.)

"I try to use the word *friendlier*," Pakman said. Then he went on about how great At Ease would be when you had other folks using your system—vandalistic students or playful kids or virgin Mac users who just didn't know what the hell they were doing—and you didn't want your files in the wrong places or renamed or trashed. And I guess that At Ease does the trick for them.

I also think that for someone who has never used a Macintosh, At Ease might help them get going a bit quicker. Though when I finally got a copy of the program myself (just to experiment with, mind you—you'll never see the thing on *my* machine), I came to think that a Mac beginner might do well not to go near At Ease. It's like training wheels—get used to

Anti-virus software that's tough on viruses, not on you.

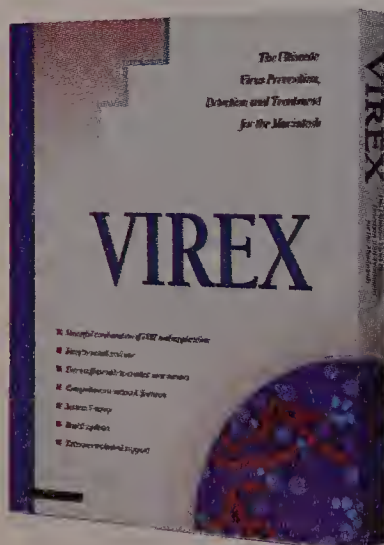
Computer virus problems within your organization can be a nightmare. New Virex® 4 is a network manager's dream. Its powerful network features enable Macintosh network managers to configure and update individual user machines from a single Mac. Network managers can also gather information about virus attacks within the organization. And Virex has always been the easiest anti-virus product to use. With Virex, you won't be tied up with lots of user questions about your anti-virus software.

NEW NETWORK FEATURES

USER-UPDATABLE

EASY TO USE

GREAT SERVICE & SUPPORT



Virex is available in single units and in an attractively-priced 10-PAK. See your favorite retailer to purchase Virex today or call us about our convenient site licensing program. Virex is also available for IBM-PC and compatible computers.

microcom®

PO Box 51489 • Durham, NC 27717
(919) 490-1277 ext.623 FAX:490-6672
BBS: 419-1602 (8,1,N)

© 1992 Microcom Systems, Inc. Microcom and Virex are registered trademarks of Microcom, Inc.

Circle 41 on reader service card

*Used to be that
when everything else went
to hell, you could depend
on the Finder desktop. Now
we need to be protected
from it, like it's some sort
of disease.*

them and it'll take you a longer time to learn to ride the bike. Sooner or later, you've got to skin your knee!

And if you use At Ease you might get the boneheaded idea that you open files by single-clicking. This is not what God, or Steve Jobs, intended.

What it boils down to is this. We ask the Finder to do a lot for us—too damned much—and to be simple, to boot. Maybe that's asking too much. Maybe the only way around it is to buy lots of utilities, or fool around in shells, or even read those bozo manuals. Or even hire a consultant! Whatever—the situation is a sorry shame, and I'm not going back out on the porch again until the matter is resolved. I'm sick of those DOS guys laughing at me. **m**

STEVEN LEVY's most recent book is *Artificial Life* (Pantheon, 1992).

THE WORLD'S FIRST OPTICAL HARD DRIVE.

When will optical drives be as fast as hard drives? At Pinnacle, and only Pinnacle, we proudly answer... today! Introducing the PMO-650™, a high speed 650 MB rewritable optical drive featuring Pinnacle's own OHD™



OHD-650 mechanism by Pinnacle Micro

(Optical Hard Drive) mechanism. The PMO-650 works like a hard drive, feels like a hard

drive, but it's better - it's optical.

And with optical there are many advantages: removability, reliability, infinite capacity and a low cost per megabyte of disk storage.

Pinnacle's R&D center, located in Colorado Springs, CO, is one of the most advanced optical research and development facilities in the country. The Pinnacle R&D Center is now the leader in optical drive performance and innovation.

The PMO-650 is faster than a Seagate® ST4350N magnetic hard drive and five times faster than Sony's® SMO-E501 optical drive. With speeds faster than most hard drives, the PMO-650's applications are endless. It can replace existing hard drives for general data storage or can be used for vertical applications such as digital audio, digital video or multimedia. The PMO-650 is the ultimate storage system. It's more than a hard drive. It's optical.

XXBENCH TEST

XCOPY.EXE DISK TRANSFER

Drive Tested	5 Mb transfer	10 Mb transfer	50 Mb transfer	100 Mb transfer
ELAPSED TIME IN SECONDS				
Pinnacle PMO 650	38.44	74.28	457.77	921.28
Sony SMO E501	185.14	396.31	2941.88	4995.14
Seagate ST4350N 350MB	61.26	125.06	819.79	1520.14



PMO-650 FEATURES

- ♦ 3600 RPM rotation speed
- ♦ 19 msec effective access time*
- ♦ MTBF: 30,000 hours
- ♦ Ultra light optic head
- ♦ Split Optic Design
- ♦ ISO/ANSI Standard compliant
- ♦ Direct seek technology
- ♦ Data queuing on reads/writes
- ♦ 20 MHz processor/design
- ♦ Horizontal and vertical mounting
- ♦ Dust-resistant design
- ♦ Plug-and-play ready for MAC, IBM AT/XT, PS/2 and Compatibles, SUN, HP, Silicon Graphics and others

MACWORLD

MW

EDITORS' CHOICE

(800) 553-7070

PINNACLE MICRO

Wondering what these

1991 & 1992 Macworld World Class Award Nominee for Best Customer Support-Software. Since 1984, the original Mac mail-order source.

We have over 3,500 items to choose from, and we carry only the very **latest versions** of each product. For products or versions not yet released at press time we've indicated the expected availability dates as supplied to us by the manufacturers. Also, all software is not copy-protected, unless indicated otherwise by (CP).

Products preceded by ⑦ are **System 7** compatible. For *specific features* of System 7, please ask your salesperson when placing your order. Also, our **System 7 Video** featuring Macworld Contributing Editor Lon Poole is just \$9 (2244) or *free* when you order Apple's System 7 for \$79 (1074).

Companies participating in the 30- or 60-day **Money Back Guarantee** program are highlighted with a ★. If you are not satisfied with your purchase of any MBG item, call us for an authorization and return it *with all of the original packaging/reg. card* within the guarantee period for a refund check (or credit on your credit card.) We reserve the right to limit quantities on returns.

Corporate Accounts welcome. Bids and P.O.'s accepted. Please call 800-800-3333 for information.

POWERBOOK MEMORY, DRIVES, CASES

After Hours Software

1199 ⑦GUM (*Guy's Utilities for Macintosh*) .. \$59.

Applied Engineering

8799 PowerBook Auto Adapter 69.

8800 PowerBook Charger/Conditioner..... 139.

Computer Care

4153 BookView Imperial 140-170 1075.

4162 BookRAM 4S 339. 4161 BookRAM 6S 469.

★Dayna ... 60 day MBG

5396 DaynaPORT SCSI Link PB (BNC) 299.

5360 DaynaPORT SCSI Link PB (10-BASE-T) 299.

5484 DaynaPORT SCSI Link-3 PB..... 349.

Envisio, Inc.

1848 Notebook Display Adapter 030 (0 MB). 629.

1837 (2 MB) 829. 1835 (4 MB)..... 1049.

7098 Notebook Display Adapter 030 (6 MB) 1329.

2411 ColorBook 16 (2 MB) (Oct. '92)..... 949.

2380 (4 MB) 1149. 2268 (6 MB)..... 1399.

★FWB, Inc. ... 30 day MBG

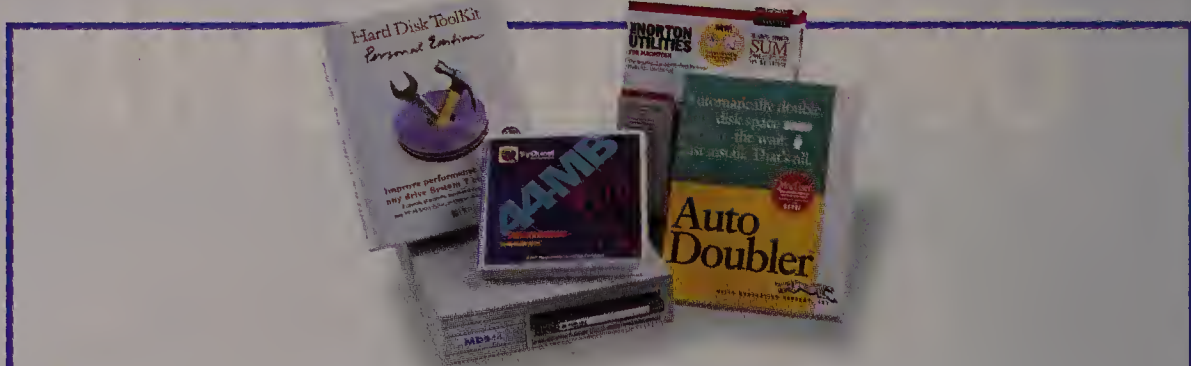
5568 hammerPB120 879.



★Utilitron, Inc. ... 30 day MBG

3012 ⑦PowerSwap—Avoid interruptions. Swap PowerBook batteries w/o shutting down.. \$25.

9616 ⑦Guaranteed Undelete—Recover deleted files, quickly and easily—guaranteed! The most dependable undelete for the Mac!. \$45.



★MDS Drives ... 60 day MBG

MDS Removable SyQuest Drives—Come complete with one cartridge and all the software you need for low-level formatting of cartridges, selecting interleaves for fastest data access, defining partitions, and initializing them in either Mac or A/UX formats. There's also disk caching and volume password protection.

Plus, get Salient's *AutoDoubler* or *Norton Utilities*. Includes a 2 year warranty and Hard Disk ToolKit Personal Edition.

5533 MDS 44 with AutoDoubler..... \$439.

5532 MDS 44 with Norton Utilities 439.

5534 MDS 88 with AutoDoubler 539.

5535 MDS 88 with Norton Utilities 539.

44 MB & 88 MB SyQuest Cartridges *see listings*

Interex

9846 Battery for PowerBooks 79.

★I/O Design ... 30 day MBG

3362 PowerBook SL (*Slimline PowerBook Case*) 64.

3371 PowerBook EX (*External Drive Case*)... 69.

★Kensington ... 30 day MBG

1118 Compact PowerBook Case 49.

1092 Deluxe PowerBook Case 79.

5976 Notebook Keypad 99.

MASS Microsystems

6313 1" Portable Drive Granite Case (120 MB) 599.

6304 HitchHiker Portable Granite Case (80 MB) 749.

2220 MASSfm 24/96 PB 189.

NEC

6577 CDR37 Portable CD-ROM Drive 399.

PowerBook Cables

8461 HD130 to Centronics 50 Pin Male (18") . 39.

8460 HD130 to DB25 Male (18")..... 42.

8459 HD130 to Centronics 50 Pin Female (18") 45.

PowerBook Memory Modules

3742 PowerBook Module 2 MB..... 94.

5090 4 MB..... 179. 5091 6 MB..... 249.

★PSI Integration, Inc. ... 30 day MBG

5320 ⑦PowerModem 206. 6961 ⑦Pow. Mod. II 295.

★Sophisticated Circuits ... 30 day MBG

7425 PowerPad..... 79. 7419 w/QuickKeys 119.

Sigma Designs

6939 Power Portrait (*Granite Case*)..... 849.

★Targus ... 60 day MBG

1305 Universal Notebook 69.

6037 Premier Leather Case 169.

★T/Maker ... 30 day MBG

5316 The PowerBundle Carry Case (*only*).... 55.

★Utilitron, Inc. ... 30 day MBG

3012 ⑦PowerSwap 25.

COMPUTERS

Outbound Systems, Inc.

Includes a limited time bundle. \$400 value.

⑦2030E Series (25 MHz 68ec030)

2653 882: 8 MB, 80 MB HD (*incl. math copro.*) 3499.

⑦2030S Series (33 MHz 68030)

2669 882: 8 MB, 80 MB HD (*incl. math copro.*) 4079.

DAILY BUSINESS

ACCOUNTING, DATABASES, SPREADSHEETS, WORD PROCESSING

A Lasting Impression

⑦ResumExpert or Cover Letters ea. 48.

★Abacus Concepts

7106 ⑦StatView 4.0 369.

1967 ⑦StatView 4/SuperAnova Bundle 699.

★Acius ... 30 day MBG

5618 ⑦4th Dimension 2.2.3..... 509.

★Advanced Software ... 30 day MBG

8051 ⑦Intouch 2.0 55. 9049 ⑦DocuComp II 99.

After Hours Software

1352 ⑦TouchBASE or 3314 DateBook... ea. 79.

7411 ⑦TouchBASE & DateBook Bundle..... 95.

1977 ⑦TouchBASE/After Dark/Quicken Bundle 95.

Amaze, Inc.

4989 ⑦CATHY Daily Planner 42.

3582 ⑦The Far Side Computer Calendar 37.

★Attain Corporation ... 60 day MBG

8465 ⑦In Control 1.1 87.

★Avery ... 60 day MBG

7446 ⑦MacLabel Pro 1.5 48.

★Banner Blue ... 30 day MBG

3548 ⑦Org Plus For Macintosh 1.0..... 125.

★Baseline Publishing ... 30 day MBG

8881 ⑦Thunder 7 1.0.6 55.

★Beagle Bros. ... 30 day MBG

3119 ⑦BeagleWorks.. 169. 3563 Upgrade .. 89.

Broderbund Software

3608 ⑦MacUSA 29.

3356 ⑦MacGlobe 34.

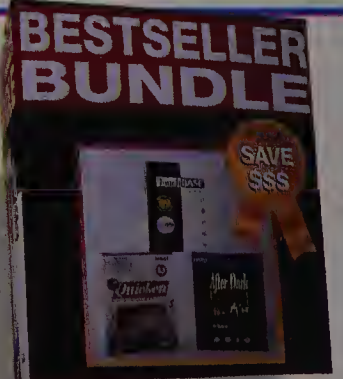
★CheckMark Software ... 60 day MBG

5863 ⑦MultiLedger. 225. 3767 Multi-User . 419.

5862 ⑦Payroll 4.6..... 169.

★Chena Software ... 30 day MBG

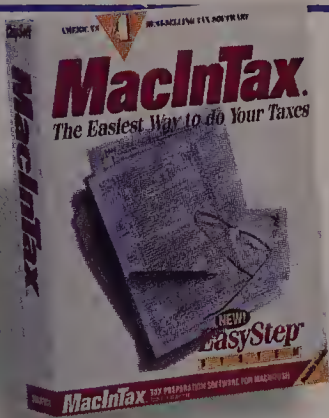
1594 ⑦Fair Witness 1.2..... 185.



After Hours Software

1977 ⑦Bestseller Bundle—Get Quicken, After Dark and TouchBASE, all for only \$95! The three top-rated products in their categories, at an unbelievable price, for a limited time only. Act now! \$95.

products really do?



★ChipSoft ... 30 day MBG

8059 **MacInTax Headstart**—Over 90 forms, schedules & worksheets, & Easy Step, a revolutionary new tax preparation system that leads you through your return. \$5 mfg. rebate, \$10 rebate if purchased with state pkg... **\$49.**

★Chipsoft ... 30 day MBG

8059 **MacInTax Personal Ed. 1992 Headstart**.. 49.
MacInTax State Tax Packages..... ea. 35.

★Claris ... 30 day MBG

1129 **MacWrite II** 89. 1745 **MacProj Pro** 409.
 3903 **ClarisWorks 1.0V2** 199. 3743 **Upgrade** 95.
 3531 **Claris Resolve** 169. 3745 **Upgrade** 95.
 8216 **FileMaker Pro 2.0** 268. 4752 **Upgrd.** 89.

★Essential Software ... 30 day MBG

4086 **Easy Alarms 2.0** 61.

★Expert Software ... 30 day MBG

5234 **Expert Writer 1.0**..... 29.

★ExperVision ... 30 day MBG

7486 **TypeReader (\$100 rebate thru 12/31/92)** 499.
 8442 **TypeReader Compact Upgrade** 149.

★Good Software ... 30 day MBG

2527 **REMS Property Manager** 399.

Helix Technologies

1077 **Helix Express**..... 299.

★Intuit ... 30 day MBG

2507 **Quicken 3.0** 42.



★Attain Corporation ... 60 day MBG

8465 **In Control 1.1**—Get organized fast with this top-rated To-Do-List Manager. Rate 4½ Mice by *MacUser* (8/92). In Control's multi-column outline lets you organize and reorganize your lists instantly **\$87.**

JAM Software
 6089 **Smart Alarms Plus**..... \$45.

★Kaetron Software ... 30 day MBG

7066 **OrgChart Exp. 124.** 8941 **TopDown** 195.

★Lotus Development ... 30 day MBG

3606 **1-2-3 for Mac.** 289. 3604 **Upgrade** . 95.

★MECA ... 60 day MBG

2796 **Managing Your Money** 44.

★Microlytics ... 60 day MBG

6461 **WordFinder Plus 4.02**..... 39.

7820 **Random House Encyclopedia 1.0** 68.

★Microsoft ... 30 day MBG

2884 **Works 3.0 (Oct.)** 155. 8173 **Upgrd.** 79.

3669 **Excel 4.0**... 295. 5237 **Upgrade** 95.

4902 **Word 5.0**... 295. 1503 **Upgrade** .. 125.

5454 **The Microsoft Office 2.5** 475.

★Niles & Associates ... 30 day MBG

4602 **EndNote 1.5**.. 85. 8010 **Plus 1.2**.. 145.

Nisus Software

5683 **Nisus 3.06** 238. 1612 **Compact 3.3** 92.

★Nolo Press ... 30 day MBG

4228 **Personal RecordKeeper 3.0** 30.

2981 **WillMaker 4.0 (not valid in LA.)**..... 35.

1204 **Living Trust 1.0 (not valid in LA.)**..... 45.

★OCCAM Research Corp. ... 60 day MBG

3697 **MUSE 1.01** 469.

★Palo Alto Software ... 60 day MBG

6932 **Employee Handbook Toolkit 5.2**..... 65.

6975 **Business Plan Toolkit 4.0** 75.

★Pastel Development ... 30 day MBG

1785 **DayMaker 2.0 (Oct.)** 79. 1011 **(network)** 92.

★Portfolio Systems ... 30 day MBG

7992 **DynoPage 1.7** or 6916 **Dynodex**. ea. 49.

★Power Up ... 30 day MBG

7696 **Calendar Creator 2.0** 44.

★ProVUE ... 60 day MBG

4582 **Panorama II 2.0.6** 239.

★Reality Technologies ... 30 day MBG

6929 **WealthBuilder 1.02 (\$25 rebate)**..... 95.

★Reference Software ... 30 day MBG

6268 **Grammatik Mac 2.0** 39.

Round Lake Publishing

LetterWorks, SALES or LEGAL ea. 45.

1570 **PERSONNEL ReadyWorks** 69.

★Shana Corporation ... 30 day MBG

7692 **Informed Designer** 159. 8810 **In. Mgr.** 99.

★SoftSync, Inc. ... 30 day MBG

7129 **Accountant, Inc.** 335. 3828 **MultiUser** 569.

Spyglass, Inc.

2027 **Transform 2.1** 399. 2033 **Format** 159.

★Symantec ... 30 day MBG

2237 **GreatWorks 2.0** 129. 2278 **Upgrd.** 89.

3422 **More 3.1** 265.

★Synergy ... 30 day MBG

6617 **KaleidaGraph 2.1.3**..... 149.

Systat

1230 **FASTAT for Mac 1.0**..... 399.

1231 **SYSTAT for Mac 5.2**..... 699.

★Teleware ... 30 day MBG

7616 **M.Y.O.B. 3.0** 138.

★TIMESLIPS ... 30 day MBG

1701 **LapTrack for the Mac**..... 52.

2986 **Timeslips III 2.1** 194.

★T/Maker ... 30 day MBG

1858 **FaxMania (birthdays to bulletins)** 25.

3639 **WriteNow 3.0** 149. 5259 **Upgrade** 49.

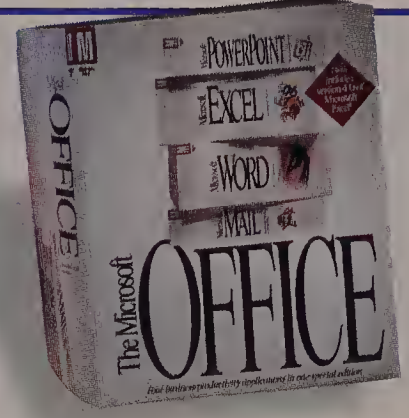
5253 **WriteNow 3.0 Competitive Upgrade** ... 69.

★Vertical Solutions ... 60 day MBG

5886 **FastLabel 3.1.6**..... 44.

★WordPerfect ... 60 day MBG

3800 **WordPerfect 2.1** 279. 4711 **Upgrade** 89.



★Microsoft ... 30 day MBG

5454 **The Microsoft Office 2.5**—Increase productivity at your office with the latest versions of these popular applications: Excel 4.0, Word 5.1 (11/92 Release), PowerPoint 2.01, and Microsoft Mail 3.0..... **\$475.**

★Wordstar ... 30 day MBG

6984 **Correct Grammar 3.01**..... 55.

3554 **American Heritage Dictionary 1.0**..... 55.

★Working Software ... 60 day MBG

5896 **Last Resort 38.** 3792 **Spellswell 2.2** 44.

GRAPHICS & DESIGN PUBLISHING, PRESENTATIONS

★Abracadata, Ltd. ... 30 day MBG

9990 **Design Your Own Home - Architecture,**

9992 **Interiors** or 9994 **Landscape**... ea. 48.

Adobe Systems

Adobe Type Sets for Business ea. 95.

Adobe Type Library (Vol. 1-308)..... call

6957 **Adobe Type Reunion 1.0.3**..... 41.

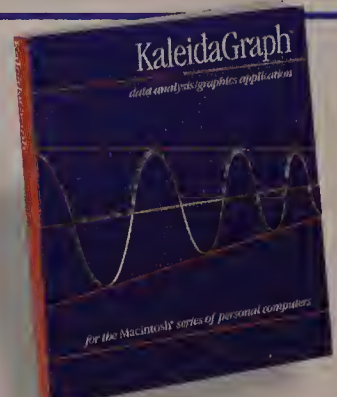
5750 **Adobe Type Manager (ATM) 2.0.3** 59.

6053 **Plus Pack 2.0** 118. 6098 **TypeAlign** 61.

4145 **Adobe Premiere** 429. 3199 **Upgrad.** 149.

8171 **Adobe Illustrator 3.2 (with ATM)**..... 368.

5001 **Streamline** 119. 6644 **Photoshop** 548.



★Synergy ... 30 day MBG

6617 **KaleidaGraph 2.1.3**—Data analysis and presentation tool. Lets you enter or import data, run sophisticated analysis, and then create scientific or business graphics using any of 16 plot types **\$149.**

3333

MEMBER
MMC
 of the Direct Marketing Association, Inc.

MacConnection®

14 Mill Street, Marlow, NH 03456 603-446-3333 FAX 603-446-7791

Let MacTV™



After Hours Software

1352 **TouchBASE 2.0**—Keeps track of personal & business contacts..... \$79.
3314 **DateBook 1.5**—Combines calendar, scheduling, alarms, & To-Do lists to help you keep on top of your important events..... 79.

Aldus ... 30 day MBG

6674 **Aldus Personal Press 2.0**..... 99.
2461 **Aldus Gallery Effects 1.0**..... 128.
3506 **SuperPaint 99.** 7541 **IntelliDraw 199.**
4751 **Persuasion or 3507 Super 3D** ea. 325.
1330 **FreeHand 394.** 7088 **PageMaker 494.**

Altsys

1983 **EPS Exchange 2.0**..... 89.
1195 **Fontographer 3.5**..... 258.

Apple Computer

3008 **The Apple Font Pack**..... 69.

Ares Software ... 30 day MBG

8878 **FontMonger 1.5 (Oct. '92)**..... 93.

Baseline Publishing ... 30 day MBG

8055 **Screenshot 1.2**..... 34.

Broderbund Software

7293 **Kid Pix Companion**..... 23.
3572 **Kid Pix 1.2**..... 34.
1427 **Print Shop**..... 35.
6281 **TypeStyler 2.1 (with ATM)**..... 126.

Clarix ... 30 day MBG

2518 **MacDraw Pro 275.** 7505 **Upgrade 95.**
8007 **Clarix CAD 2.0**..... 599.

Custom Applications

8037 **Freedom of Press Light 3.03 (17 fonts).** 84.

DeltaPoint ... 60 day MBG

3558 **DeltaGraph Professional 2.0 (w/calc.)** 199.

Deneba Software ... 30 day MBG

3227 **Canvas 3.0.4**..... 259.



Aladdin Systems ... 30 day MBG

6740 **StuffIt Deluxe 3.0**—Compression solution solves all your needs from archiving to transparent compression..... \$65.
7410 **StuffIt Space Saver 1.0**—Increases disk space without changing the way you work 34.

Expert Software ... 30 day MBG

4870 **Expert Color Paint 1.0**..... \$29.
8619 **Expert Home Design 1.0**..... 29.

Foundation Publishing ... 60 day MBG

9438 **Comic Strip Factory Bundle**..... 71.
Fractal Design

1068 **Sketcher 1.0** 94. 5425 **Painter 1.2** 235.

Letraset ... 30 day MBG

4709 **LetraStudio 139.** 6300 **FontStudio 359.**
Light Source

3733 **Ofoto 1.1.1**..... 275.

Linguist's Software ... 60 day MBG

Over 100 language fonts..... call
Macromedia

7651 **Action! Mac (Oct. '92)**..... 349.

7441 **SwivelPro 479.** 3450 **SwivelMan 619.**

7653 **MacroModel**..... 999.

Manhattan Graphics

4990 **Ready, Set, Go! 5.14**..... 219.

MicroMaps ... 30 day MBG

7556 **MapArt (PICT) or 7555 (EPS)**..... ea. 89.

Microsoft ... 30 day MBG

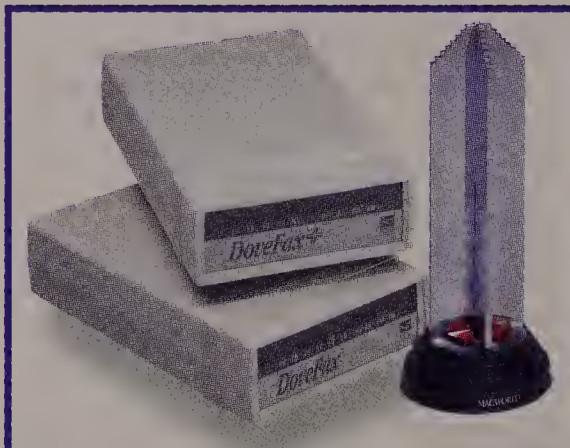
2878 **PowerPoint 3.0 (Oct. '92)**..... 245.

Postcraft International

2210 **Effects Specialist 1.04**..... 89.

Quark

7612 **QuarkXPress 3.1**..... 549.



Dove Computer ... 30 day MBG

9634 **DoveFax+V**—Fax, data, and voice communications on the World Class Award-winning DoveFax. 96/24 bps Fax/Modem plus personalized voice mail system.... \$265.

Specular International ... 30 day MBG

4962 **Infini-D 2.0**..... 699.

Terrace Software

9970 **Mum's The Word Plus (gardening)**... 107.

Timeworks ... 30 day MBG

7115 **Publish It! Easy 3.0**..... 109.

7409 **Color•It! 2.0**..... special 129.

T/Maker ... 30 day MBG

ClickArt (bitmapped) 38. or (EPS) 82.

Virtus Corporation ... 30 day MBG

4488 **WalkThrough 1.1**..... 309.

PROGRAMMING UTILITIES, HYPERCARD, SECURITY

Abbott Systems ... 30 day MBG

2515 **Calc+ 1.0** 39. 5236 **CanOpener 2.0** 59.

Aladdin Systems ... 30 day MBG

7410 **StuffIt Space Saver 1.0**..... 34.

6740 **StuffIt Deluxe 3.0**..... 65.

Aldus ... 30 day MBG

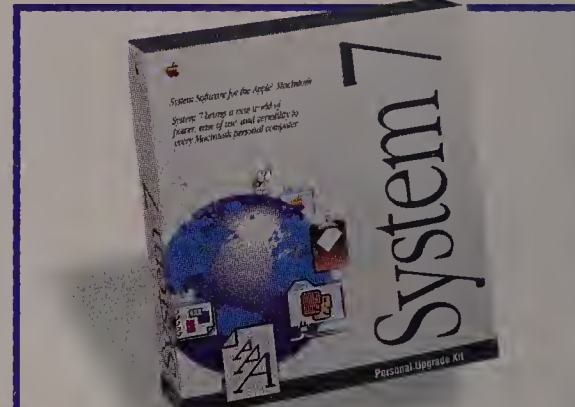
5100 **SuperCard 1.6**..... 195.

ALSoft ... 30 day MBG

9808 **MasterJuggler 1.58**..... 25.

9807 **DiskExpress II 2.11**..... 48.

5204 **ALSoft Power Utilities 1.0.2**..... 62.



Apple Computer

1074 **System 7**—Add powerful new capabilities like Publish and Subscribe, MultiTasking, Balloon Help, Virtual Memory, and more to your existing System. Includes free ATM disk, 4 fonts, & video..... \$79.

Alysis Software ... 30 day MBG

2687 **SuperDisk!** 49. 1608 **More Disk Space** 42.

Apple Computer

1206 **At Ease 1.0**..... 49.

1074 **System 7 (w/free ATM & video)**..... 79.

3413 **System 7 Group Upgrade Kit**..... 249.

7072 **QuickTime Starter Kit**..... 149.

ASD Software ... 30 day MBG

7085 **FileGuard 2.7 (1 user)**..... 138.

Baseline Publishing ... 30 day MBG

7783 **INIT Manager 33.** 3114 **DiagnoSYS 39.**

Berkeley Systems ... 30 day MBG

2198 **More After Dark (M.A.D.)**..... 23.

5737 **After Dark 2.0V**..... 28.

2196 **After Dark & M.A.D. Bundle**..... 39.

3392 **Star Trek: The Screen Saver**..... 34.

Casa Blanca Works ... 30 day MBG

1593 **Drive 7 2.3**..... 49.

CE Software ... 60 day MBG

1727 **CalendarMaker 3.0.1**..... 31.

8024 **QuickKeys² 2.1.2**..... 89.

Central Point ... 30 day MBG

5041 **Mac Tools Deluxe**..... 99.

Clarix ... 30 day MBG

8734 **HyperCard Development Kit 2.1**..... 139.

Connectix ... 30 day MBG

8441 **CPU (Connectix PowerBook Utilities)**... 49.

Coral Research

7310 **TimeLog**... 62. 7309 **(10 Pak)**... 399.

Dantz Development ... 30 day MBG

3393 **DiskFit Pro 1.0**..... 72.

5255 **Retrospect 147.** 7945 **Remote 1.3** 264.

7946 **Remote (10 Pak)** 147. 3112 **(50 Pak)** 649.

Fifth Generation ... 30 day MBG

4287 **PYRO! 4.01** 27. 3955 **Suitcase 2.1** 53.

7704 **Public Utilities (Oct. '92)**..... 98.

8286 **SuperLaserSpool 3.0**..... 99.

5178 **FastBack Plus or 5725 DiskLock**... 125.

7404 **DiskDoubler or 4838 AutoDoubler** ea. 45.

FWB, Inc. ... 30 day MBG

7929 **Hard Disk Utilities Personal Edition**... 49.

2999 **Hard Disk ToolKit 1.1.1**..... 125.

ICOM Simulations

6296 **Intermission**.. 29. 3731 **OnCue II**.. 55.

Inline Design ... 30 day MBG

1744 **Icon 7**... 31. 9843 **InSync 1.0**... 79.

7068 **INITPicker 3.0 (Oct. '92)**..... 38.

2913 **Redux 1.63**... 49. 1740 **Deluxe**... 92.

Kent Marsh Ltd. ... 30 day MBG

9513 **FolderBolt 1.02**..... 71.

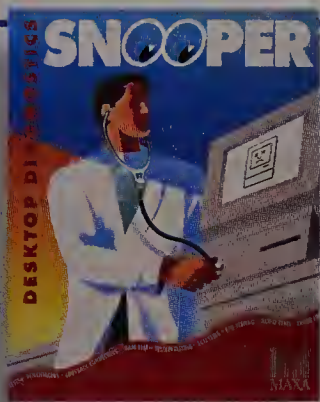
Kiwi Software ... 60 day MBG

6267 **KiwiENVELOPES! 3.1.6**..... 32.

Magic Software ... 30 day MBG

7267 **AutoSave II** 26. 7270 **Backmatic**.. 50.

walk you through.



★MAXA Corporation ... 30 day MBG
8692 ⑦Snooper 2.0 Hardware & Software Kit—Sad Mac? Diagnose from your Desktop with Snooper. Check out your hardware with over 60 tests. Rate your Mac performance. A must for your Utilities folder \$149.

★MAXA Corporation ... 30 day MBG
8692 ⑦Snooper 2.0 Hardware & Software Kit 149.
8694 ⑦Snooper (software only) 119.
★Microcom ... 30 day MBG
4803 ⑦Virex/Mac.. 66. 8561 ⑦911 Utilities.. 99.
★MicroMat Computer Sys. ... 30 day MBG
3732 ⑦MacEKG II 2.0 89.
★Microspot ... 30 day MBG
8706 ⑦MacPalette II..... 45.
8782 ⑦MacPlot Professional..... 249.
★Nine to Five Software ... 30 day MBG
2020 ⑦9 to 5 Office 19. 9767 ⑦Reports 2.5 125.
★Now Software ... 30 day MBG
1793 ⑦Now Up-To-Date... 65. 2366 (10). 395.
6925 ⑦Now Utilities 4.0.... 95. 8471 (10). 775.
Palomar Software
8210 ⑦PLOTTERgeist 2.1 249.
Peripheral Land, Inc. (PLI)
7326 Mac-to-DOS 3.0 99.
Pluma, Inc.
8704 ⑦Cause or 8713 ⑦Net Effect ea. 185.



★MicroMat Computer Sys. ... 30 day MBG
3732 ⑦MacEKG II 2.0—Provides in-depth knowledge on what makes your Mac tick. Features: advanced component-level diagnostics, log & compare 178 different parameters, ability to isolate/diagnose intermittent failures \$89.

★Symantec ... 30 day MBG
5176 ⑦Symantec AntiVirus for Mac (SAM).. \$64.
6748 ⑦Norton Utilities for Mac 2.0 95.
3421 ⑦THINK Pascal 165. 2688 ⑦THINK C 199.
9957 ⑦THINK Reference 1.0 68.
Teknosys
5203 ⑦HELP! 88.
★TGS Systems ... 60 day MBG
6667 ⑦Prograph 2.5 299.
★Thought I Could ... 30 day MBG
4843 ⑦Wallpaper 1.0.2 37.
UserLand Software
4753 ⑦Frontier 1.0 189.
★Utilitron, Inc. ... 30 day MBG
9616 ⑦Guaranteed Undelete w/TrashMaster 45.

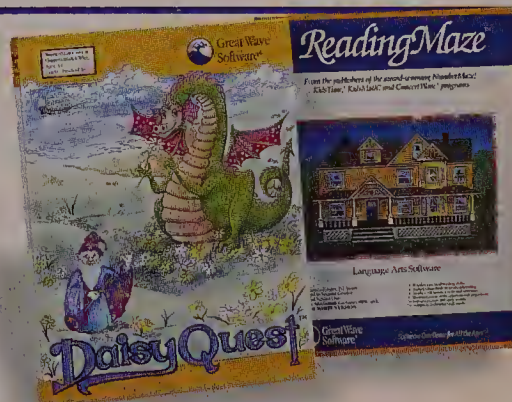
LEARN & PLAY FOREIGN LANGUAGES, TRAINING, GAMES

★Abracadata, Ltd. ... 30 day MBG
5805 ⑦Sprout! 1.0 (veggie garden planner)... 39.
Activision
1039 ⑦Shanghai II 29.
1134 ⑦Lost Treasures of InfocomVol. I..... 40.
2470 ⑦Lost Treasures of InfocomVol. II..... 29.
★AMTEX Corporation ... 30 day MBG
2517 ⑦Tristan..... 39.
★Baseline Publishing ... 30 day MBG
7785 ⑦Talking Moose 4.0.2 22.
Broderbund Software
6516 ⑦The Playroom 2.0 (CP) (color)..... 29.
⑦Carmen Sandiego Series (CP)..... ea. 29.
8285 ⑦Where/World Carmen Sandiego Deluxe 47.
3559 ⑦SimAnt or 5871 ⑦SimCity Supreme. ea. 35.
8266 ⑦SimEarth 1.1 40.
1910 ⑦SimLife.... 41. 3307 ⑦A-Train.... 39.
Buena Vista Software
1711 ⑦Heaven and Earth..... 29.
★Centron Software ... 30 day MBG
2707 ⑦Puzzle Master..... 26.
5910 ⑦Crossword Creator 39.
8525 ⑦Casino Master... 39. 8524 (Color).... 45.
Colorado Spectrum
2554 Mouse Yolk..... 29.
★Cyan ... 30 day MBG
6320 ⑦Manhole 1.6..... 19.
★Davidson & Associates ... 30 day MBG
3922 ⑦Talking Spell It Plus 29.
2574 ⑦New MathBlaster Plus 34.
8278 ⑦Alge-Blaster Plus 34.
Delta Tao Software
2536 ⑦Spaceward Ho! or 2439 ⑦Strategic Conq. 36.
EARTHQUEST
8050 ⑦EARTHQUEST or 3118 ⑦Ecology 1.0 34.
Electronic Arts
5702 ⑦4D Boxing.... 32. 1907 ⑦PGA Golf.. 39.
★Expert Software ... 30 day MBG
6219 ⑦Expert Astronomer 1.0..... 29.
Graphic Simulations
4756 ⑦Hellcats Over the Pacific 1.0.3 39.
★Great Wave ... 30 day MBG
8044 ⑦Decimal & Fraction Maze (Color) 35.
6693 ⑦KidsMath 2.0 or 2276 Kid's Time.. ea. 25.
4334 ⑦NumberMaze.. 25. 8527 ⑦(Color) .. 35.
1513 ⑦ReadingMaze (Color) 35.
3471 ⑦DaisyQuest 35.
★HyperGlot Software ... 30 day MBG
(French, German, Italian & Spanish)
⑦Word Torture ea. 32. ⑦Tense Tutor ea. 38.
⑦Pronunciation Tutor
(Span., Fren.) ea. 32. (Germ., Chin.) ea. 38.



Delta Tao Software
2536 ⑦Spaceward Ho! 2.0—Design spacefleets, research technologies, and colonize worlds against up to 20 opponents \$36.
2439 ⑦Strategic Conquest 3.0—Conquer the world by building armies, carriers, bombers, etc. 36.

★Inline Design ... 30 day MBG
1562 ⑦3 in Three or 1944 ⑦Swamp Gas. ea. 31.
1747 ⑦Swamp Gas Europe 31.
8809 ⑦Tesseract 31. 3414 ⑦Mutant Beach 39.
Innerprise
1662 ⑦CyberBlast 25.
Interplay Productions
1894 ⑦BattleChess (3D animation)..... 29.
1893 ⑦CheckMate (infinite play levels)..... 31.
★Learning Company ... 30 day MBG
2670 ⑦Reader Rabbit 3.0 (CP) (ages 4-7)..... 34.
3687 ⑦Super Solvers: Midnight Rescue! 34.
2988 ⑦Super Solvers: SpellBound!..... 34.
3281 ⑦The Writing Center 1.0 51.
★Leister Productions ... 30 day MBG
7126 ⑦Reunion 3.0 115.
★MECC ... 30 day MBG
3963 ⑦Oregon Trail 1.1 28.
3960 ⑦Number or 3959 Word Munchers ... ea. 18.
★Microsoft ... 30 day MBG
2868 ⑦Flight Simulator 4.0 (CP) 42.



★Great Wave ... 30 day MBG
3471 ⑦DaisyQuest—Premier pre-reading learning experience that prepares a young learner thru the introduction of word sounds, for the necessary steps in learning to read \$35.
1513 ⑦ReadingMaze-Color..... 35.

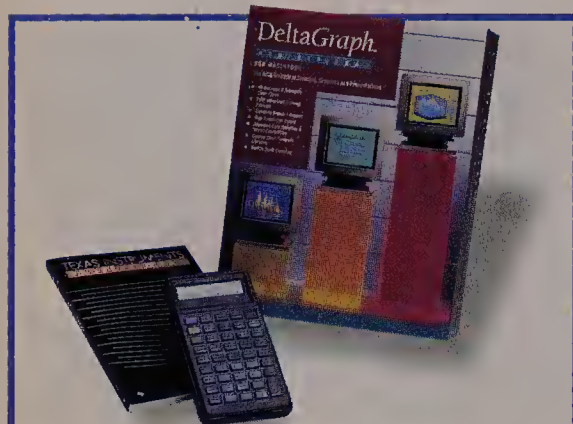
3333



MacConnection®

© Copyright 1992 PC Connection, Inc. MacConnection is a division and registered trademark of PC Connection, Inc., Marlow, NH. MacTV is a trademark of PC Connection, Inc.

Call for your



★DeltaPoint ... 30 day MBG

3558 **DeltaGraph Professional 2.0**—Over 35 different chart types for business, presentation, scientific, statistics, & engineering. From 10/1/92 thru 1/31/93, receive a FREE Texas Instrument advanced scientific calculator (TI-68)... **\$199.**

★Nordic Software ... 30 day MBG

8257 **Preschool Pack - Color 2.0**..... 34.
7470 **Jungle Quest 30.** 7537 **Kolor Klips 37.**

★Penton Overseas ... 30 day MBG

VocabuLearn/ce Levels I & II (Span., Fren., Germ., Ital., Rus., Japan., & Heb.)... ea. 35.
VocabuLearn/ce Level III (Span., Fren., Germ., Ital., Rus., & Japan.)..... ea. 35.

★Personal Training Sys. ... 60 day MBG

Training for System 7, Excel, Lotus 1-2-3, Persuasion, FileMaker Pro, PageMaker, Illustrator, FreeHand, Word, HyperCard, QuarkXPress, ClarisWorks & Mac...ea. 49.
Pluma, Inc.

8695 **Capitalist Pig**..... 34.

★Que Software ... 30 day MBG

9743 **Typing Tutor V**..... 29.
Sierra On-Line
2412 **Rise of the Dragon**..... 34.
3552 **Leisure Suit Larry V or 7396 Red Baron 39.**

★SoftStream ... 30 day MBG

4489 **Galactic Frontiers**..... 38.
3472 **Family Cards (Solitaire, Rummy, War)** 49.
Software Toolworks

4619 **Mavis Beacon Typing 1.3 (CP)**..... 29.

★Spectrum Holobyte ... 30 day MBG

4835 **Tetris 1.3.** 27. 3017 **Wordtris 1.0.** 27.
3459 **Falcon 2.2.2 or 8181 Vette 1.0**... ea. 33.

★Strategic Studies ... 30 day MBG

3287 **Warlords (empires at war)**..... 34.

StudyWare

ACT, GMAT, GRE or SAT Prep... ea. 29.

8098 **LSAT Prep**..... 35.

★Toyogo ... 30 day MBG

7624 **NEMESIS Go Master 5.0**..... 38.
7623 **NEMESIS Go Master Deluxe 5.0**..... 99.

Velocity

2934 **Spectre**... 34. 5280 **LAN 3-Pak**... 57.

VIDEO AND SOUND MONITORS, MUSIC, ANIMATION

Articulate Systems

7013 **Voice Navigator SW w/Headset Mike**.. 325.
7014 **Voice Navigator SW w/Desktop Mike**.. 325.

Coda Music Systems

8188 **MusicProse**.. 189. 5604 **Finale**.. 549.

★DIVA Corporation ... 30 day MBG

3011 **VideoShop**..... 369.

Macromedia

5486 **Sound Edit PRO 2.05**..... 199.
4598 **MacRecorder Sound System PRO**... 239.
5087 **MacroMind Director 3.1**..... 799.
2246 **MacroMind Three-D 2.0.2**..... 999.

NEC

4252 **MultiSync 3FGx**..... \$659.

Passport Designs

8250 **Encore (with free Trax)**..... 379.

Radius

1738 **Color Pivot LE**..... 899.

1736 **Precision Color Display/20S**..... 2899.

RasterOps

9784 **RasterOps 24SX 649.** 8944 **24STV**.. 819.

8039 **Paintboard Li**..... 929.

7695 **24Mx**..... 1249. 7702 **24MxTV**..... 1799.

8392 **Sweet 16 Color Monitor**..... 1249.

7699 **Sweet 16 Video System**..... 1999.

7703 **Sweet 16 Live Video System**..... 2599.

Sigma Designs

6944 **Power Portrait (platinum)**..... 769.

Software Toolworks

5201 **The Miracle (piano teacher)**..... 349.

Sound Source

9972 **Star Trek: The Logical Collection Vol. 1** 30.

9988 **Star Trek: The Final Frontier Vol. 2**..... 30.

1759 **AudioClips 2001 w/Hal the computer**.. 35.

★SuperMac Technology ... 30 day MBG

4122 **VideoSpigot LC**..... 255.

4114 **VideoSpigot IIsi**..... 339.

4164 **VideoSpigot (for NuBus)**..... 379.

7676 **VideoSpigot Pro. 1099.** 3691 **Pro si 1099.**

7679 **Spigot & Sound (NuBus)**..... 489.

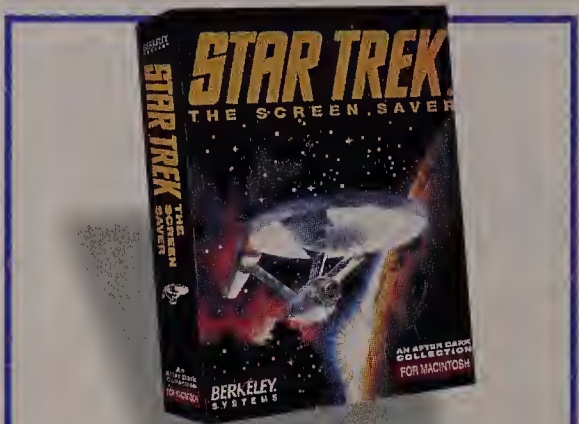
7678 **Spigot & Sound Pro (NuBus)**..... 1099.

7677 **17" SuperMatch Multimode**..... 1149.

1805 **20" SuperMatch Color Display**..... 1599.

4720 **21" Platinum Two-Display**..... 1099.

2330 **Spectrum/8•24 PDQ or 2231 PDQsi** ea. 899.



★Berkeley Systems ... 30 day MBG

3392 **Star Trek: The Screen Saver**—Beam aboard the Enterprise with Captain Kirk and Mr. Spock on a mission to prevent screen burn-in. 15 animated displays, System IQ, and After Dark compatibility..... **\$34.**

CD-ROM

Broderbund

3730 **Just Grandma and Me (CD-ROM)**..... 34.

CD Technology

2321 **CD-ROM Caddy**... 11. 2533 **(5 Pack)** 49.

8057 **Porta Drive CD-ROM**..... 579.

Creative Multimedia Corp.

1874 **Mammals of North America**..... 29.

8739 **Beyond the Wall of Stars**..... 40.

8744 **Total Baseball 40.** 2484 **Family Doctor 45.**

★Cyan ... 30 day MBG

1343 **Manhole (CD-ROM)**..... 23.

2717 **Cosmic Osmo 1.1 (CD-ROM)**..... 37.

★Ergonomic Software ... 30 day MBG

7056 **Panoramix Vol. 1 (CD-ROM)**..... 69.

★Highlighted Data ... 30 day MBG

7771 **Webster's Dictionary (CD-ROM)**..... 159.

6968 **Footage '91 (CD-ROM)**..... 159.



★Centron ... 30 day MBG

2707 **Puzzle Master**—Solve 250 New York Times crossword puzzles on your Mac. **\$26.**
5910 **Crossword Creator**—Create your own puzzles from a word list..... **39.**

★HyperGlott Software ... 30 day MBG

(French, German, Italian, or Spanish)

Berlitz Think & Talk (CD-ROM).. ea. 125.

ICOM Simulations

3717 **Sherlock Holmes, Consulting Detective 38.**

Interplay Productions

7111 **Battlechess**..... 45.

★METATEC/Discovery Sys. ... 60 day MBG

6823 **Best of MIDI Connection**..... 32.

3683 **Backpac 1, 3679 2, or 2176 3** ea. 45.

★Multimedia Library ... 30 day MBG

Image Series Vol. 1-4 (Russia/China, Tropics, Parades, Ancient Egypt).. ea. 105.

7313 **Sound Series V.1-Music for Multimedia** 105.

7312 **Educ. Series V. 1-Animated Relativity** 105.

NEC

6577 **CDR-37 CD-ROM Portable Drive**..... 389.

6826 **General Reference CD-ROM Bundle** 439.

6582 **CDR-74 CD-ROM Drive**..... 629.

Software Toolworks

4836 **World Atlas 45.** 4397 **Time Table of Hist.** 49.

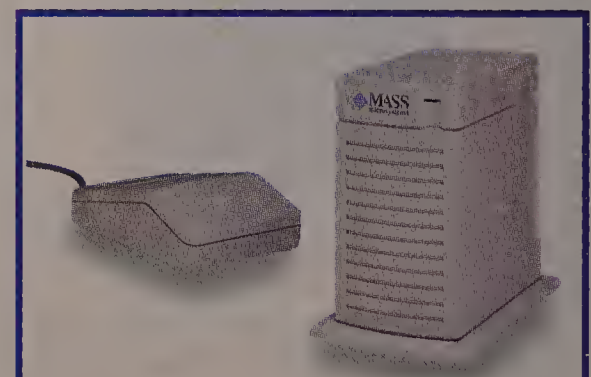
3915 **Grolier Encyclopedia (CD-ROM)**..... 249.

COMMUNICATIONS MODEMS, MAIL, NETWORKS

Apple Computer

7073 **Mac PC Exchg.** 69. 7102 **AppleShare** 969.

7101 **AppleTalk Remote Access**..... 159.

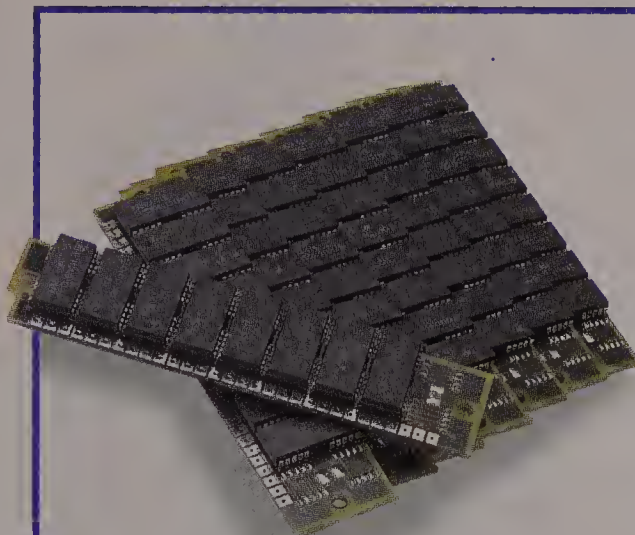


MASS Microsystems

2280 **MASSfm 24/96N Network Fax**—Elegantly designed 9600 bps send/receive network fax modem serving unlimited users. The MASSfm Network Fax works with AppleShare, TOPs, PacerShare and NetWare for Mac..... **\$349.**

FREE Viewer's Guide.

3362	★Applied Engineering ... 30 day MBG
	❖QuadraLink (with AE Shadow) \$269.
	★Argosy Software ... 30 day MBG
7872	❖Software Bridge/Mac 2.0.1 99.
	★CE Software ... 60 day MBG
3066	❖QuickMail (5 user) 249. 8067 (10) 375.
	★CompuServe ... 60 day MBG
1676	❖Mac Membership Kit 2.0 (Oct. '92)..... 25.
1673	❖CompuServe Navigator 3.1 49.
1674	❖Membership Kit/Navigator Bundle 72.
	★DataViz ... 60 day MBG
1842	❖MacLink Plus/Translator 6.0 109.
823	❖MacLink Plus/PC 6.02 129.
	★Dayna ... 60 day MBG
	DaynaPORT TRX: (BNC or 10 BASE-T) ea. 87.
	DaynaPORT E: (BNC or 10 BASE-T) ea. 149.
1719	EtherPrint 339. 9888 (10BASE-T) ea. 339.
7888	DaynaPORT E/II-3 Adapter 199.
	DaynaPORT SCSILink (BNC or 10 BASE-T) 269.
962	PathFinder 599.
	Dove Computer ... 30 day MBG
1758	❖DoveFax 2.0 .. 199. 3352 NuBus 229.
1634	❖DoveFax+V .. 265. 4111 NuBus.... 299.
	★Dow Jones ... 30 day MBG
1295	❖Dow Jones News Retrieval Membership 24.
	★Farallon Computing ... 30 day MBG
	Full line of EtherMac Cards available ... call
1805	❖Timbuktu 4.0.2 or 4866 ❖Remote 3.0 129.
1273	PhoneNET StarConnector 10-Pack 129.
1869	PhoneNET Connector 10-Pk (DIN8) ... 195.
1961	PhoneNET Card PC 209.
1206	PhoneNET StarController 307..... 879.
1802	Star 357... 1025. 4814 Star 377 ... 1299.
142	Ether10T-Starlet..... 279.
	★Freesoft ... 30 day MBG
1115	❖White Knight 11 85.
	★Global Village ... 30 day MBG
1730	❖PowerPort/Bronze 199.
1720	❖PowerPort/Silver 439. 7710 Gold. 519.
174	❖TelePort/Bronze..... 199.
175	❖TelePort/Silver 359. 2179 Gold 439.
	Hayes
101	❖HayesConnect 3.0 (modem sharing).. 75.
300	❖Smartcom II Mac 84. 3226 Upgrade. 44.
971	OPTIMA 24 145. 5970 OPTIMA 96 389.
	Insignia Solutions
557	❖Access PC... 60. 3229 ❖SoftAT ... 299.
726	❖Entry Level SoftPC 2.5 125.
089	❖Universal SoftPC 2.5 195.
441	❖SoftNode 1.0 105. 3454 (10 Pack) 699.
	Logicode Technology
525	Quicktel Xeba M9624XV 159.
524	M9696XV... 311. 5523 M1414XV.. 325.
	★Lotus Development ... 30 day MBG
121	❖cc:Mail Macintosh Platform Pack 2.0 339.
	MASS Microsystems
280	MASSfm 24/96N Network Fax 349.
	★Microcom ... 30 day MBG
459	❖CarbonCopy Mac 2.0.1 (single)..... 59.
	★Microsoft ... 30 day MBG
444	❖Microsoft Mail 3.0 (1-5 user)..... 269.
	★Practical Peripherals ... 30 day MBG
994	2400 V.42bis Modem 125.
934	PM9600SA Modem 1.26 289.
849	❖SmartPack 9600 (with Smartcom II). 349.
	★Prometheus ... 30 day MBG
724	❖Home Office (24/96 w/Voice Mail).... 259.
990	❖Ultima Home Office (144/96)..... 489.
	PSI Integration, Inc.
143	❖COMstation ONE 195. 3142 ❖TWO .. 299.
340	❖COMstation FOUR 369. 6965 ❖FIVE 549.
	★Shiva ... 30 day MBG
444	❖NetSerial 1.35..... 275.
347	❖NetBridge or 4942 ❖TeleBridge 399.
555	❖LanRover/L 599.
	NetModem/E (thick, thin, 10BASE-T) ea. 1479.
	Sitka/TOPS
188	Teleconnector (DIN8) 19. 2230 (10). 179.
264	❖TOPS Network 3.1 187. 2419 (3-Pak) 249.



SIMMs ... with free video and manual
RAM your Mac to System 7 specs and beyond. At the lowest prices around. All SIMMs come with a full 2-year warranty, plus a free installation manual and video. We also have 2 MB, 4 MB, and 6 MB PowerBook modules. So kick your Mac into overdrive and create huge spreadsheets and complex graphics with power to spare.

8316	1 MB SIMMs (80ns, set of 2)	\$65.
9437	2 MB SIMMs (for IIse or LC).....	61.
7437	4 MB SIMMs (80ns)	114.
7600	4 MB SIMMs (80ns, set of 4)	454.
	16 MB SIMMs (for Quadras, set of 4) call	
3742	PowerBook Modules (2 MB)	94.
5090	(4 MB).....	179.
5091	(6 MB)	249.

	★Software Ventures ... 30 day MBG
3455	❖MicroPhone Pro (Oct. '92) 209.
	★Synergy ... 30 day MBG
6618	❖VersaTerm 4.6.. 90. 6619 PRO 3.6 177.
	★Technology Concepts ... 30 day MBG
6314	Fax Line Mgr. 202 99. 6315 Mgr. 203. 125.
	★TechWorks ... 30 day MBG
7690	❖Net Utilities 75. 1763 ❖Hubworks-8 249.
1582	❖GraceLAN..... 275.
1584	❖GraceLAN Corporate..... 669.
	Ethernet Cards..... call
	★White Pine Software ... 30 day MBG
2404	❖Mac 320.... 95. 2403 ❖Mac 330 159.
2400	❖Mac 340... 239. 3544 ❖Exodus 4.0 199.
	★Zoom Telephonics ... 30 day MBG
1168	❖AMX Modem (2400 baud) 63.
2310	❖FX9624 Send/receive Fax/Modem 99.
3576	❖FX9624V Send/receive V.42 Fax/Modem 128.
1179	❖V.42bis Modem (with MacPack)..... 125.
2311	❖V.32 Modem.. 199. 4698 V.32bis. 229.
3553	❖Fax/Modem VFX V.32bis..... 269.

INPUT/OUTPUT KEYBOARDS, MICE, TRACKBALLS, PRINTERS & SCANNERS

	★Appoint ... 30 day MBG
2760	❖Thumbelina Mac (mini 3 button mouse) 65.
2769	MousePen Pro Mac..... 65.



★Logitech ... 30 day MBG
7112 ❖FotoMan—Easy-to-use portable battery operated with built-in flash allows you to take up to 32 pictures anywhere indoors or outdoors. Includes Digital Darkroom software..... \$639.

	Caere
7705	❖OmniPage Direct..... 259.
4476	❖OmniPage 459.
4930	❖OmniPage Professional 649.
	Calera
4981	❖WordScan..... 189.
4697	❖WordScanPlus..... 379.
	CoStar
	❖Stingray ADB (platinum or black) . ea. 79.
	★Curtis Manufacturing ... 30 day MBG
8046	MVP Mouse (MVP-1) 89.
	★Datadesk ... 30 day MBG
9830	❖MAC101E 129.
2384	❖MAC101E with QuickKeys 159.
6901	❖Switchboard (modular keyboard)..... 159.
	★Everex ... 30 day MBG
1144	❖Silhouette Trackball 1.0 (ADB Macs).. 78.
	GDT Softworks
3429	❖BetterWriters 39. 8297 ❖Network.. 89.
2499	❖PowerPrint 94. 8290 ❖Network..... 169.
	Hewlett-Packard
6514	HP B&W DeskWriter (w/cartridge) 479.
2964	HP Color DeskWriter C (w/color cart.)... 799.
9993	HP LaserJet IIIIP (requires kit) 1099.
6754	HP LaserJet III (requires kit)..... 1599.
	★Kensington ... 30 day MBG
2547	❖Turbo Mouse 4.0 ADB 107.
	Key Tronics
6974	❖Mac Pro Plus Keyboard..... 139.
1074	❖TrakPro Keyboard 219.
	Kraft Systems
7519	❖KM30 Trackball..... 42.
	★Logitech ... 30 day MBG
1671	❖MouseMan..... 77.
1672	❖TrackMan..... 89.
5082	❖ScanMan Model 32 G-Scale Scanner 299.
7112	❖FotoMan with Digital Darkroom 639.
	★MicroSpeed ... 30 day MBG
2807	❖MicroTRAC ADB (for SE & II family) .. 57.
6621	❖MacTRAC ADB 2.0 (SE & II family).... 75.
	Monster Design Group
1486	MacSpeakers (two, stereo) 169.
	★Mouse Systems ... 30 day MBG
7520	❖Little Mouse or 8001 ❖ Plus ea. 68.
9471	❖A ³ Mouse..... 74.
	NEC
5377	SilentWriter Model 95..... 1439.
	★Orange Micro ... 30 day MBG
8431	❖Grappler II 9-Pin 102. 3692 ❖IIsp.. 115.
	★Sophisticated Circuits ... 30 day MBG
8009	❖PowerKey 2.01. 75. 8008 ❖Remote. 32.
	Thunderware
4994	❖LightningScan 400..... 359.
3107	❖LightningScan Pro 256..... 489.

800-800-6912.

UPGRADES & DRIVES MEMORY, ACCELERATORS

SIMMs ... with free video & manual

8316	1 MB SIMMs (80ns, set of 2).....	\$65.
9437	2 MB SIMM for Ilsi or II LC.....	ea. 61.
7437	4 MB SIMMs (80ns) 114. 7600 (set of 4) 454.	

★Applied Engineering ... 30 day MBG

2479	73.5" Floptical Drive.....	479.
1971	FastMath LC.....	109.
8361	71.44 MB High Density Drive.....	229.
2532	QuickSilver Accelerator for the Ilsi.....	269.
5290	7Plus Drive (FDHD for Plus & SE).....	299.
TransWarp Series:		
3319	SE (25 MHz) 739. 3317 (40 MHz).....	1139.
4147	LC (33 MHz) 759. 4903 (40 MHz).....	1029.
7321	IIci (50 MHz) 1159. 7322 (w/FPU).....	1399.

Asante

1739	7MC3NB (Mac II Ethernet card).....	189.
------	------------------------------------	------

★Dayna ... 60 day MBG

8722	DaynaFile II 1.2 5 1/4" Drive.....	429.
------	------------------------------------	------

★DayStar Digital ... 30 day MBG

Does not include optional math chip.

3584	DualPort Ilsi with 20 MHz 68882.....	165.
8556	7FastCache for Mac IIci.....	223.
8785	7FastCache 040 (for Quadra).....	409.
3401	7FastCache Ilsi 299. 3389 w/FPU.....	369.
	7PowerCache for SE/30, II, IIX, IICX, IICI, ILSI, LC	
	40 MHz.....	819. 50 MHz..... 1179.

★FWB, Inc. ... 30 day MBG

2329	PocketHammer 100 699. 2314 PH 240.1169.	
2333	Hammer Int. 100is 519. 2334 240is 979.	
7991	HammerDisk 1000FMF.....	2249.
7319	HammerDisk 130 (optical).....	1599.

IOMEGA

6499	90 MB Transportable (reqs. interface). 679.	
2467	90 MB Gold Std. Rem. Cart. (Qty. 3).....	439.
7789	7Mac 1B Interface (w/Central Pt. Backup) 39.	
2466	7Mac 2B Interface (with Retrospect) ..	149.
8781	Mac Transportable 90 PRO.....	499.

MASS Microsystems

2973	120 MB HD 519. 2972 210 MB HD ..	819.
2969	320 MB HD 1199. 2952 510 MB HD 1429.	
5899	1" 120 MB Port HD.....	499.
3678	120 MB Port. 499. 3663 210 MB Port. 739.	
3662	320 MB Port. 1129. 3659 510 MB Port. 1349.	
3657	HitchHiker Portable Drive (40 MB).....	389.
3656	HH (80 MB) 629. 7008 HH (120 MB) 749.	
1909	DiamondDrive 1000.....	2199.
1936	DiamondDrive 1500.....	2899.

★MDS Drives ... 60 day MBG

	MDS 44 SyQuest w/software.....	ea. 439.
	MDS 88 SyQuest w/software.....	ea. 539.

Peripheral Land, Inc. (PLI)

6432	3 1/2" Optical Media 65. 9737 (10 pak) \$599.	
8335	PLI TurboFloppy 1.4.....	295.
8327	PLI Infinity 40 Turbo (removable).....	599.
9752	PLI Infinity 88 Turbo (removable).....	729.
4645	PLI Infinity MO 3.5" Optical Drive.....	1599.
2864	PLI Infinity Floptical Drive (21 MB).....	479.
2865	Floptical Cart. (21 MB) 29. 2899 (10 pak) 259.	
2644	PLI 52 MB External Hard Drive.....	449.
8330	PLI 105 MB (Quantum).....	599.
7123	85 MB.....	419. 7124 120 MB..... 539.
7125	330 MB... 1399. 7145 520 MB.....	1699.
7140	670 MB... 1999. 7122 1.26 GB.....	2699.

★SuperMac ... 30 day MBG

2256	ThunderStorm.....	849.
------	-------------------	------

MEDIA

★Fuji ... 60 day MBG

2214	3 1/2" DS Disks (10).....	9. 2242 (50)..... 32.
2215	3 1/2" HD Disks (10).....	15. 2241 (50)..... 59.
4863	3 1/2" HD Disks (20) with storage case....	26.
2243	3 1/2" Color (10) DS 10. 2239 (10) HD...	16.



Logicode Technology

5523 Quicktel V.32bis M1414XV—Combine speed & styling & you have the Quicktel 14,400 bps send & receive fax/modem. Incl. CCITT V.32bis, V.42bis, MNP 5, lifetime warranty, cables, lighted icons & more **\$325.**

★Sony ... 60 day MBG

3297	3 1/2" DS Disks (10).....	9. 6148 (30)..... 25.
3298	3 1/2" HD Disks (10).....	15. 6375 (30)..... 42.
1603	DG60M.....	16. 2520 DG90M..... 22.
8185	QD2040.....	14. 1895 QD2120..... 21.

★SyQuest ... 60 day MBG

5912	44 MB Cartridge (1).....	65. 5529 (3) . 189.
5528	44 MB Cartridge (5) ..	310. 9728 (10) 615.
3603	88 MB Cartridge (1) ...	100. 5531 (3) . 292.
5530	88 MB Cartridge (5) ...	480. 3600 (10) 950.

★3M ... 60 day MBG

3943	DC2000.....	17. 1581 DC2120..... 23.
------	-------------	--------------------------

ACCESSORIES TONERS, CASES, DUST COVERS

American Power

3447	SurgeArrest Plus.....	39.
------	-----------------------	-----

Apple Computer

9773	StyleWriter Ink Cart. 22. 8499 (3 Pack) 59.	
7748	Personal LaserWriter Toner Cartridge ..	87.
1115	LaserWriter II Toner Cartridge.....	105.

★Avery ... 60 day MBG

4811	Avery 5182 (8 1/2" x 11"-Trans.-Laser)	22.
7050	Avery 5660 (1" x 2 5/8"-Clear Adrs.-Laser) 32.	
5392	Avery 5196 (3 1/2"-Disk Labels-Laser).....	29.

★Curtis Manufacturing ... 30 day MBG

8973	Apple Security Kit (SL-2).....	22.
------	--------------------------------	-----

★I/O Design Cases ... 30 day MBG

8812	Ultimate Classic 64. 1941 Ultimate LC 95.	
------	---	--



★Applied Engineering ... 30 day MBG

2479 73.5" Floptical Drive—Enables you to store 21 MB per 3.5" Floptical disk. Floptical package incl. SCSI cable, driver, terminator, one Floptical disk & Insignia Solutions Access PC software for MS/DOS compatibility **\$479.**

★Kensington ... 30 day MBG

Full line available.

4973	Power Tree 20.....	24.
2559	Apple Security Kit.....	33.
6763	Mac SE Anti-Glare Filter.....	52.
3623	Apple 12" Anti-Glare Filter.....	63.

★Targus ... 60 day MBG

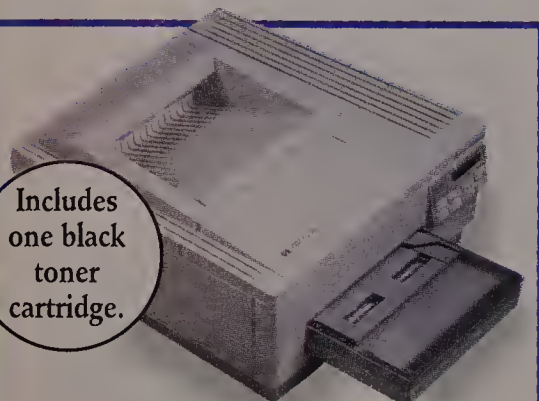
3617	Mac Classic/Plus/SE Case.....	59.
4015	Mac SE & Ext. Kybd. Carrying Case.....	75.

OUR POLICY/SHIPPING

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on subsequent shipment(s) (in the U.S.).
- No sales tax, except Ohio residents (please add applicable tax).
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped First Class Mail.
- International orders U.S. \$100 minimum. Manufacturer support and upgrade eligibility may be limited outside the U.S.A.
- Upon receipt and approval, personal & co. checks clear same day for immediate shipment of your order.
- Corporate P.O.s accepted subject to credit approval.
- COD maximum \$1000. Cash or certified check. COD orders require an additional \$4 charge.
- 120 day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. All items are subject to availability. Prices and promotions are subject to change without notice.
- Order lines open continuously from 8 a.m. Monday until 5 p.m. Sunday ET. Business offices: 603-446-7711 Monday through Friday 9 a.m. to 5:30 p.m. ET:

Continental U.S.: The total shipping charge on any order placed with MacConnection is only \$3. Barring events beyond our control, all credit card orders phoned in weekdays by 3:15 a.m. Eastern Time will ship Airborne Express for delivery the next business day. Which means *same day* delivery for orders placed between midnight and 3:15 a.m. Eastern Time. (Some orders may ship by UPS Ground for next day delivery). Saturday delivery available to many areas upon request at no additional charge. Order all day Saturday through noon on Sunday for Monday delivery. Some areas require an additional day delivery.

Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands: Call 800-800-3333 for shipping info. **All other areas:** Please call 603-446-3333 or FAX 603-446-7791 for information.



Includes
one black
toner
cartridge.

Hewlett-Packard

6754 HP LaserJet III—Exclusive Resolution Enhancement technology with 300 dpi sets a new standard. Prints up to 8 pages per minute as well as holding up to 5 MB of memory. Includes toner. Requires kit..... **\$1599.**

MacConnection[®]

YOUR SOURCE FOR MAC SOFTWARE AND PERIPHERALS SINCE 1984.

November 1992

MacTV

VIEWER'S GUIDE

A New Show
Every Weekday!

With
Rene Schwartz,
Victoria Hall Smith,
Joseph Bourke, and
other Mac experts.


ONE FULL HOUR OF NEWS & PRODUCT DEMOS



HIGHLIGHTS:

Adobe Illustrator . . . Aldus Freehand . . . ASD FileGuard 2.7
Farallon Networking Cards . . . 1-2-3 for Macintosh
Smartcom II Mac . . . Microsoft Word 5.0 . . . WealthBuilder
Nisus . . . After Dark . . . ALSoft Power Utilities

Call 800-800-6912 for your
copy of MacTV Viewer's Guide.



COME TO YOUR NEXT PRESENTATION ARMED WITH A LETHAL WEAPON.

Walking into a presentation today loaded down with overheads and slide

trays is suicide. ■ If you really want to blow an audience away, it takes animated graphics. Live action video. And the kind of high resolution images you see every day on your computer screen. ■ Only bigger. ■ An LCD projection device from nVIEW can give you all that. A seamless, computer-based presentation. In over 250,000 true, saturated colors. From up to four video sources (computer or television video) using a standard

new multiple source LCD projector with its own built-in light source. ■ For killer presentations, we have the weapon. And we'll put it up against any

overpriced, oversized 3-gun CRT projector any day.

■ Arrange for a demonstration before your competitor does.

Call **1-800-736-8439** or **804-873-1354**. Or write

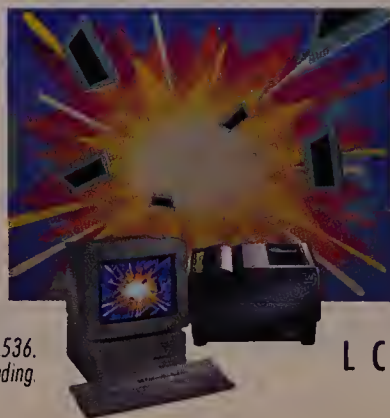
nVIEW Corporation, 860 Omni Blvd.,

Newport News, Virginia 23606.

nVIEW

LCD PRESENTATION PRODUCTS

nVIEW products are manufactured under U.S. patents #4,763,993 and #4,976,536.
Other and foreign patents pending.



The Upgrade Express

BY DEBORAH BRANSCUM

MACINTOSH SOFTWARE upgrades are a big business. How big? In 1991, upgrades made up 12 percent of the word processors shipped, 18 percent of the professional draw/paint programs shipped, and a whopping 37 percent of the spreadsheets shipped by members of the Software Publishers Association. Those figures are expected to climb in 1992 and beyond. Upgrades can provide one-third to one-half of a company's revenues, according to Royal Farros, CEO of WriteNow publisher T/Maker Company.

That's partly a result of a maturing industry—as fewer zippy new products are developed, companies concentrate on established applications. It also makes good business sense, because upgrades sold directly to consumers can be more profitable to software developers than initial sales through mail-order companies or retail stores. So that means software companies are vying vigorously for your dollars.

Defining Upgrades

UPGRADE POLICIES VARY BY COMPANY, but Adobe Systems seems representative of larger companies. "There are major upgrades, there are minor upgrades, and there are so-called silent upgrades," explains Adobe's LaVon Peck. "Major upgrades, let's say from a 2.0 to a 3.0, are usually charged upgrades. We do a big mailing to all of our registered users and we charge them X amount to upgrade to the new version."

For minor upgrades, also called maintenance upgrades and bug fixes, Peck says Adobe sends letters to registered users letting them know they can obtain the upgrades for the cost of shipping and handling. That's generally about \$7.50 or less for domestic users. "Then there are silent upgrades, those upgrades we don't announce because it's usually for a very small percentage of the installed base that has the problem," says Peck.

Silent upgrades, also called in-line upgrades by some companies, generally address problems specific to a certain hardware configuration or that involve a conflict with another program. Adobe, like

most companies, doesn't notify its users of the problems solved by silent upgrades; instead, the company waits for users to call in and then offers to send them the upgrade once the problem has been identified. "It's pretty straightforward," says Peck.

But it's less clear to users, if my mail is any indication. In the past 18 months *Macworld* has received 29 complaints about software upgrades. Upgrades can be buggy, difficult to obtain, too frequent, and too expensive, according to some readers.

In turn, software developers say users don't recognize the costs of developing software. "Many users don't really have insights into the costs that are required to make software," notes Steve Ruddock of Claris. "A major revision of a major software program like FileMaker Pro consumes millions of dollars in development costs. The salaries of the people who write the code would be over \$1 million alone."

What Upgrades Cost

UPGRADE POLICIES VARY WILDLY. Unsurprisingly, upgrades for professional-level programs are more expensive than for low-end offerings. And small companies tend to charge much less than large companies, perhaps because they have lower operating costs. With one exception, all the upgrades from utility publisher Connectix, for example, have been sent to registered users at no charge. Microsoft, on the other hand, is now charging \$129 for its most recent Excel and Word upgrades. (Word 5.0 owners will get 5.1 for less than \$20, according to Judy Chase, Microsoft Word product manager, who says this "deal of the century" is intended to reward users for their loyalty.)

Do free upgrades mean that Connectix is good? Do three-figure upgrades demonstrate that Microsoft is bad? Not necessarily, according to Steve Costa, executive director of the BMUG user group. "Connectix is a really small company now, but what happens when it gets large and upgrades cost them \$1 mil-

lion?" he asks. "I'm a firm believer that the more companies that can make a profit, the more companies will be out there making Macintosh products."

That doesn't mean consumers should fall for inflated upgrade offers. It does mean that developers aren't evil incarnate for trying to make a profit. It's up to you to decide when the profit is reasonable and when it stinks—and take your business elsewhere if necessary.

Reasonable people can differ over what's fair. When Word 3.0 was launched with serious problems, Microsoft yanked it and then mailed upgrades to all its users. Ditto for Beagle Bros with its initial release of BeagleWorks. The company halted sales and then sent out free upgrades. When programs are so seriously flawed, that's only reasonable. But other situations aren't so reasonable. What if you got a buggy program and the upgrade's pricey?

Speak up—it does make a difference. Developers responded admirably to individual complaints *Macworld* forwarded to the companies. In some cases they waived upgrade fees, replaced programs, and changed their policies. Last year Insignia Solutions, for example, reconsidered its SoftPC 2.5 upgrade policies in the wake of several consumer complaints, relaunched the upgrade, and lowered the price. Is that great or what?

What should upgrades cost? Developers say various rules of thumb exist to help them determine what to charge. "Some people say you should charge one-third to one-half of the original product cost," says T/Maker's Farros. "The real thing is that you charge what the market will bear. You want to price it so that people will take advantage of it."

Other sources pegged upgrade prices to the number of features added or simply the amount of work and resources involved in producing an upgrade. Microsoft's price strategy is pretty simple, according to Bill Johnson, Macintosh Excel product manager. "We try to get a return on our investment. Prices do vary."

continues



*A bust or a
bargain?*

*Depends on your
needs.*

Service Heroes

Last August 19, *Macworld* reader Richard L. Paul's PowerBook 140 failed and would not restart. So he called the Apple PowerBook Hotline. Paul was told the computer needed to be sent in for repairs, and that an Airborne Express truck would pick up the computer from his house the next morning and return it by Tuesday, August 25.

"On Monday, August 24, at 9 a.m., Airborne Express returned my PowerBook in perfect working order with a complete explanation of the repairs performed," writes Paul via America Online. "This repair did not cost me a thin dime, not even a packing box or tape. Nor did it require me to travel to the Airborne Express shipping office to drop it off. I think Apple deserves some recognition because they did what they promised; they did it faster than they promised."

Upgrade Do's and Don'ts

COMPANIES HAVE TO LOOK OUT FOR their own best interests and so do users. Be an educated consumer. Check out your options, and try these tips for a more satisfying upgrade path.

- Send in that registration card! Newsletters listing upgrades, software bundles, and other forms of official company offers and info will never make their way into your mailbox unless you register. (And keep copies for yourself, in case developers lose their copies.)

Many companies have upgrade "windows" that give recently registered customers discounted or free upgrades. Claris, for example, announced FileMaker

Pro in April 1990 and shipped it in October 1990. Consumers who bought FileMaker II after April 1 received free upgrades to the new version.

- Call tech support if you're having problems with a program—a secret upgrade may save the day. "The presumption is that if there is a problem, people will call," says Claris's Ruddock.

- Don't assume an upgrade is necessary. I'm still using Word 4.0 and it works fine. Apparently zillions of folks lobbied Microsoft for a grammar checker, but I'm not one of them. I'm missing out on 5.0's other benefits too, but that's OK because the older version serves my needs. Feel free to ignore the upgrade escalator unless

it takes you to an appealing location. Talk to user group members, go online, and read the mags for details before you plunk down big money for an upgrade.

- Find out what an upgrade fixes. Any fabulous new features will be trumpeted in big type in a company's marketing literature. But you may have to call the company to find out if any significant bug fixes that you need are included in the upgrade. (The bug fix alone may be available for a nominal fee.)

- Determine the true cost of an upgrade. Does the upgrade offer include manuals, or do manuals cost an additional \$29, as in a recent Claris offer? Are there other hidden costs? "It's not just how much the upgrade costs, but it's also how much hardware does this company require that I buy to run the program acceptably," claims T/Maker's Farros, who is not exactly neutral on the topic. Retraining time and expense may also be a factor if an upgrade is very different from its predecessor.

- Don't assume developers offer great deals. Usually they do, but readers have reported a few cases in which major upgrades through a software developer were close to the cost of a new program via mail order. In such cases, you might

continues

A Winning Combination!

Whether used alone or together, CheckMark's MultiLedger® and Payroll give you efficient, straightforward, and easy-to-use accounting software. See for yourself why they were selected as MacWorld Editors' Choice.



Call (800) 444-9922 today
for a free demo disk!



MultiLedger • Payroll

MultiLedger is a registered trademark of CheckMark Software, Inc., 1520 East Mulberry, Suite 200, Fort Collins, Colorado 80524 (303) 484-3541 (303) 484-0429 fax.

MAC DIRECT

Specialists in Mac Storage

Toshiba Special!

Toshiba 830MB 3.5" ..\$1288
 Toshiba 1200MB 3.5" \$1788

- 11.5ms access time!
- Incredibly Reliable!
- Perfect for the Power User
- Internal 3.5" for most Macs

Toshiba Drives

	Internal	External
Toshiba 830mb 3.5"	\$1288	\$1368
Toshiba 1200mb 3.5"	\$1788	\$1888

These Toshiba 3.5" drives are the perfect internals for the Mac Quadra, FX, II, CI, CX, SE and SE/30 computers. With up to 1.2 gigabyte formatted capacity you will not have to worry about running out of space for a long time. The 12.5ms access time and the 1.3mb/sec throughput lets you access your information fast! The three year warranty and the great Toshiba name means not having to worry about reliability.

For a limited time all Toshiba hard drives include FWB Hard Disk Tool Kit!

Optical Drives

NuDesign 3.5" 128mb Optical **\$1198**

- MacWorld Editors Choice, October 1992.
- 30ms access time
- Read/Write reliable storage
- Includes cartridge

Ricoh 600mb Optical **\$2198**

- Read write reliable storage
- Great for archiving, color scans, etc.
- Includes cartridge

Toshiba 3301 CD-ROM Drive **\$538**

- Includes driver CD carrier and cables
- 325ms access time
- MacWorld and MacUsers Highest Rated CD-ROM!



Maxtor Drives

	Internal	External
120mb 3.5" LPS	\$358	\$438
213mb 3.5" LPS	\$598	\$698
760mb 5.25"	\$1398	\$1498
1.2Gig 5.25"	\$1898	\$1998

SyQuest 44MB & 88MB Removables

44MB Removable **\$448.00**

88MB Removable **\$598.00**

- 19ms Access time
- Both Drives include Cartridge
- Dual AC Outlets, 40 Watt power supply
- SCSI Select and 2 Year Warranty

DAT Tape Backup

ArDat 2.1 Gig Capability **\$1398**

WangDat 2.1 Gig Capability **\$1498**

- Up to 10 mb per minute backup time
- Includes SoftBackup II for Fast network and unattended backup capabilities

NuDesign 2.1 Gig DAT

NuDesign Dat 2.1 Gig capability

With SoftBackup **\$1098**

With Retrospect **\$1198**

- Up to 2.1 Gig per tape
- Our best buy ever on DAT !
- Up to 10 mb per minute backup time
- Available with a complete version of Retrospect for Fast Network and unattended backup capabilities.



MAC DIRECT

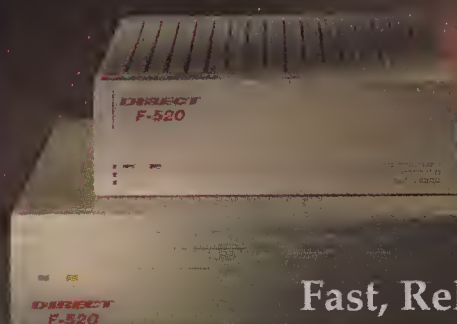
60 East Chestnut - 145, Chicago, IL 60611

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. All new Drives, preformatted with latest stable system software. Factory warranty, bracket, cables and software included. 30 Day Money back guarantee on drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice

FUJITSU

Unbeatable Quality and Performance

The Fujitsu PicoBird 4 Drives
520, 425 & 330mb



**Fast, Reliable And
MacWorlds Editors Choice!**

Fujitsu 330, 420 and 520

MacWorld Editors Choice

The Fujitsu 425 recently won the MacWorlds Editors choice award, this was for a combination of performance, quality and value. The Fujitsu 520 combines all of this plus gives the best dollar per megabyte available.

- 9 ms access times, 4400RPM Spindle Speeds and a 256k cache make these drives fast.
- 5 year warranty, 200,000 Hours Mean Time Between Failure!
(That is 22.89 years of continuous 24 hour usage!)

		Internal	External
330 MB	3.5" 9ms, 5yr warr, 200,000 MTBF	\$998	\$1098
425 MB	3.5" 9ms, 5yr warr, 200,000 MTBF	\$1098	\$1198
520 MB	3.5" 9ms, Fast SCSI, 5yr warr, 200,000 MTBF	\$1068	\$1168

Fujitsu 1.2Gig and 2.06 Gig

Intense Speed, Huge Capacity, Serious Reliability

MacDirect has sold more Fujitsu drives into the Macintosh market than all of the other Mac peripheral companies combined. Give us a call and we will tell you why we feel Fujitsu is the perfect choice for your large storage needs!

- MacWorlds Fastest 1.2 Gig drive (July 1991)
- The 2.06 Gig is our fastest drive ever!
 - 5400 RPM
 - Fast SCSI II, 10mb sec burst,
- 5 year warranty! 200,000 Hours Mean Time Between Failure!
(That is up to 22.8 years of continuous 24 hour usage!)

		Internal	External
680 MB	5.25" 16ms 5yr warr, 200,000 MTBF	\$1388	\$1488
1.2 Gig	5.25" 11.5ms, 5yr warr, (MacWorlds Fastest Gig!)	\$1648	\$1748
2.06 Gig	5.25" 11.5ms, 5yr warr, (5,400RPM & Fast SCSI)	\$2588	\$2688

800-621-8467

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00

Technical Service and Order Tracking call: 312-664-8225

CONNER

The Drive That Apple Uses



40,85,120,170mb... Great Drive Values

These Low Power, Low Profile Drives fit into all Macs from the Classic to the Quadra!

The Low Profile Low Power Conner drive offer a great option for the upgrading user. These drives install easily into any Mac from the classic to the Quadra 950! The 40 and 85 are great starter drives. Look to the 120 as the perfect step up from a 40mb and the 170 for excellent cost per megabyte .

		Internal	External
C 42 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	\$208	\$268
C 85 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	\$258	\$328
C 120 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	\$328	\$398
C 170 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	\$398	\$448

212 and 540mb... Intense Performance

The Low Power, Low Profile Conner 212mb also fits into all Macs from the Classic to the Quadra!

The 212 and 540 Conner drives are the top of the line for Conner in terms of performance and capacity. The 212 spins at 4500 RPM so that you get major performance in a very small package. Since the 212 is Low profile, Low Power it will also fit into any Mac. The high capacity 540 is the fastest drive we have tested and a perfect internal for the CX, CI, II and Quadra Series! Both drives are also available in compact or zero foot print externals.

		Internal	External
C 212 MB	3.5" LPS, 2 yr warr, 150,000 MTBF (4500 RPM Fastest 212 avail)	\$498	\$548
C 540 MB	3.5", 3 yr warr, 8.5 ms, 4500 RPM, , (Our Fastest Drive Ever!).....	\$1048	\$1148

800-621-8467

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00
Technical Service and Order Tracking call: 312-664-8225

NuDesignSpecial

NuDesign 2.1 Gig
DAT Drive**\$1098**
• Available with Retrospect 3.1

NuDesign 3.5"
Optical Drive ...**\$1198**
• Fast, reliable, remov-
able

MAC DIRECT

Specialists in Mac Storage

The NuDesign 2.1 Gig Dat Drive And The 3.5" Optical Drive

DAT Price Breakthrough!



The NuDesign 2.1 Gig DAT... High Quality, Fast Backup At A Super Price!

This drive combines a very fast and accurate mechanism with optional Retrospect 3.1 from Dantz Development. Just look at these specifications...

10.9mb per minute average backup speed- Gives you the ability to get the job done fast!

High speed random access- This feature allows you to get to your data quickly (avail. w/Retrospect).

Four-head Direct-Read-After-Write data verification- Assures that your data will be there when you need it.

Automatic built in head cleaner- Allows your drive to remain clean and error free.

SCSI II compatible interface- This gives your drive the ability to remain compatible for years to come.

45 watt switching power supply & a metal cabinet - Assures that your drive is well protected and powered.

MTBF 50,000 hours- Means that your NuDesign drive will handle years of usage.

Available with Retrospect -The first name in Macintosh backup software (a 248.00 value!)

NuDesign 2.1 Gig DAT with SoftBackup Software1098.00

With Retrospect Software1198.00

The NuDesign 3.5" Optical... 128mb in your shirt pocket at an great price!

The NuDesign 3.5" Optical is MacWorlds Editors Choice Fast, reliable and a great buy!

Fast!- With the 64k read ahead cache, the short seek scanning function and a 3mbytes per second burst transfer rate you will find that this drive competes well with hard drives.

Lowest Cost per megabyte- With 3.5 optical media at only \$59.00 per 128mb disc your cost per megabyte is only .46¢, a fraction of the costs of Syquest or hard disks.

Totally Compatible (ANSI/ISO Standard- Following the ANSI/ISO standard assures that your optical drive will always be able to interchange discs with other ISO standard drives.

Includes Hard Disk Tool Kit from FWB- This is the program recommended for Optical drives by MacWeek Editor.

NuDesign 128mb 3.5" Optical Drive 1198.00

800-621-8467

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00

Monitor Special!

Sony 19" Color ...\$1798
 Sampo 20"\$598
 • Two Page displays
 • Perfect for DTP & CAD/CAM
 • Include Interface cards
 Full Page Display.....\$398

MAC DIRECT



14" Sampo Color \$398
 Plug compatible with the IIsi, CI, and the LC



19" SONY Trinitron...\$428
 Sony 1320 for the Mac LC only.
 Sony 1304 available for \$699



19" SONY Trinitron...\$1098
 Plug compatible with the Quadra
 Plug compatible with the CI, SI and LC
 640 x 480

SONY 19" Trinitron Color 1798.00



Sony Trinitron 19" Color System

8 Bit with RasterOps 8XL \$1798.00

24 Bit With RasterOps PaintBoard \$2598.00

- The SONY 19" Trinitron is one of our best buys yet! True Trinitron color at a great price!
- Includes 8 bit or 24 Bit Video board and cable
- 2 page display supports all Mac IIs', the SI, SE-30, and the LC

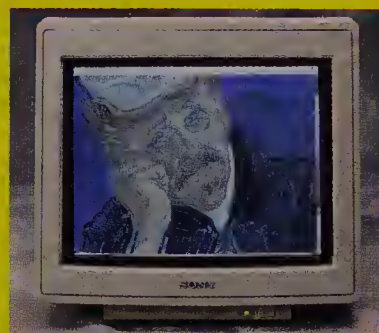
Sampo* 20" Mono System \$598.00
 Grey Scale System \$898.00

- The SAMPO is a high quality dual page display without the high cost!
- Includes 1 bit, or 8 bit Bit Video board and cable
- 2 page display supports all Mac IIs', the SI, SE-30, SE and the LC

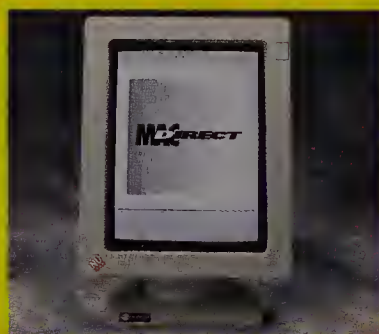
NuDesign Full Page Grey Scale \$398.00

- Plug compatible with Si, Ci and Quadra (16 levels of Grey).
- Available with 1 Bit interface card for all Mac IIs', SE-30, SE and LC \$488.00.

* 20" Monitor manufactured by Sampo for Apollo/HP



19" Sony Trinitron System
 W 8 Bit interface.....\$1798
 W 24 Bit interface.....\$2598



NuDesign Full Page Display
 Grey Scale For CI, SI, Quadra. \$398
 II, IIfx, FX, SE, SE-30, 1Bit.....\$488



19" Sampo Color System
 With 8Bit interface.....\$1498
 With 24Bit.....\$2298



UMAX 600 DPI COLOR

Umax UC-630 With PhotoShop\$1148.00

Transparency/Slide Scanner Option.....\$798.00

Automatic Document Feeder\$498.00

- Rated four mice by MacUser (Dec '91) • Rated fastest by MacUser (Dec '91)
- "Boasts the highest vertical resolution..." "Tamarack and Umax produced the best images..." MacUser
- "Tamarack and Umax excel in speed and color accuracy" MacUser
- Includes Adobe Photoshop • 8 1/2 x 14 Scanning area

UG-630 With PhotoShop Grey Scale Scanner\$898.00

Umax UC-1200S With PhotoShop\$3498.00

Transparency/Slide Scanner Option.....\$898.00

- Incredible 1200 dpi scanning resolution recognizes 1 billion colors internally
- Single-pass design increases scanning speed
- Includes Adobe Photoshop

Sharp JX-320 With PhotoShop\$1598.00

- One pass scanner • 8 1/2 x 11 Scanning area • Includes Adobe Photoshop

800-621-8467

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00
 Technical Service and Order Tracking (8:30-5:00)
 :312-664-8225

60 East Chestnut - 145, Chicago, IL 60611

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome.

All new drives, preformatted with latest stable system software. Factory warranty. Bracket, cables and software included. 30 Day Money back Guarantee covers drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

Circle 58 on reader service card

A Macintosh to start a

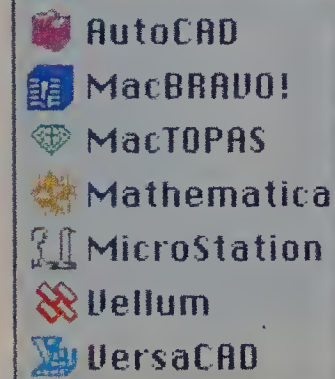
Imagine you could design your own personal computer. What would it be? It would be fast, of course. Faster than your basic 486 machine. Fast

The Apple Macintosh Quadra.

enough to handle the rendering, animating, design and analysis jobs that often require a workstation.

It would have immense storage and memory capacity. And it would have features like high-

performance networking and accelerated video support built in.



Macintosh Quadra runs all the most powerful engineering software.

You would make it flexible enough to run any kind of application. Affordable enough to put on every engineer's desk. And as long as you're fantasizing here, you'd make it as easy to set up, easy to learn and easy

to use as an Apple® Macintosh® personal computer.

But it's not a fantasy. It's a Macintosh Quadra.™

By any measure, the Macintosh Quadra 700 and 950 are two of the most powerful personal computers ever built. Both are based on the Motorola 68040 (rated at 20 and 25 MIPS, running at 25 and 33 MHz), which integrates the processor, math coprocessor and RAM cache all onto one chip.

They're up to twice as fast as any of their forebears. Fast enough to beat the chips off comparably priced 486 computers from IBM, Compaq and Dell.* And fast enough to make



Built-in 24-bit video lets you create photo-realistic images without the expense of an extra card.

programs like AutoCAD, MicroStation Mac®, MacBRAVO! and VersaCAD perform at a level once seen only in dauntingly complex workstations.

High-performance subsystems provide built-in support across the board: Ethernet networking, accelerated 24-bit video** support and faster SCSI and NuBus™ slots.

You can add a 400MB hard disk to both

*Comparisons are based on a 1991 independent research study conducted by Ingram Laboratories that tested a variety of personal computers running applications available for both the Macintosh and Microsoft Windows 3.0 environments. **24-bit video support for up to a product specifications and descriptions were supplied by the respective vendor or supplier. Orbiter images created by Jerry Flynn. ©1992 Apple Computer, Inc. Apple, the Apple logo, A/UX, Mac, Macintosh and "The power to be your best" are registered trademarks and Macintosh Quadra is a trademark of Apple Computer, Inc. MicroStation is a registered trademark of Bentley Systems Inc. MS-DOS is a registered trademark and Windows is a trademark of Microsoft Corp. Motorola is a registered trademark of Motorola Corp. NuBus is a trademark of Texas Instruments.

with the power revolution.



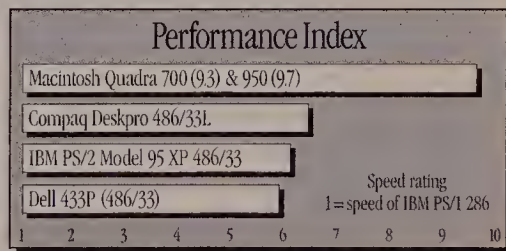
communications architecture lets you easily take advantage of features like distributed processing, allowing programs like RenderPro and BackBurner to utilize excess CPU cycles on other Mac computers or workstations for faster renderings.



There are two Macintosh Quadra models. The 950 sits next to your desk; the 700 fits on top of it.

And Macintosh Quadra fits in with the PCs you already own. The built-in Apple SuperDrive™, used with Apple's new Macintosh PC Exchange software, allows you to share files easily with MS-DOS PCs via floppy disk or over a network. And with Apple's fully compliant version of UNIX® — A/UX® — you can even run UNIX, X Window, MS-DOS and Macintosh programs all at the same time.

It all adds up to the kind of power that moved *PC Week* to give the



Macintosh Quadra significantly outperforms 486 PCs from IBM, Compaq and Dell running Windows 3.0.

Macintosh Quadra its highest satisfaction rating in the categories of overall performance, price relative to performance, expansion capability and ease of installation and configuration.[†]

Your authorized Apple reseller would be glad to show you all this and more. For the name and location of the one nearest you, call 800-538-9696, extension 200.

And soon you'll discover the latest power of Macintosh personal computers. The power to start a revolution. The power to be your best.[®]



the 700 and the 950 to accommodate the largest CAD files. And the 950 even lets you add a CD-ROM drive or a removable cartridge drive, and a disk array or more than a gigabyte of internal hard disk storage.

You can increase the memory of the 950 to up to 64MB of RAM for handling compute-intensive applications like three-dimensional modeling and stress analysis.

Over your network, the unique Apple interapplication

or — also available for 21" monitors with optional third-party video card. *PC Week, December 23/30, 1991. ©1991 Ziff Communications Company. Mention of third-party products is for informational purposes only and constitutes neither an endorsement nor a recommendation. All Drive are trademarks of Apple Computer, Inc. AutoCAD is a registered trademark of Autodesk, Inc. BackBurner is a trademark of Specular International. MacBRAVO! is a trademark of Schlumberger Technologies, Inc. MacTOPAS is a registered trademark of AT&T Graphics Software Labs. Mathematica Pro is a trademark of Wolfram, Inc. Vellum is a registered trademark of Ashlar Incorporated. VersaCAD is a registered trademark of Versacore Corp. X Window System is a trademark of MIT. UNIX is a registered trademark of AT&T. This ad was created using Macintosh computers.

WORD PROCESSOR UPGRADES

Product	Date Available	Suggested Retail Price	Upgrade Price
CLARIS MACWRITE			
5.0	7/87	\$125	\$25
II	3/89	\$249/\$129*	\$75/\$69*
MICROSOFT WORD			
1.0	1/85	\$195	—
3.0	2/87	\$395	\$50
3.01	7/87	\$395	free
3.02	1/88	\$395	free
4.0	4/89	\$395	\$75
5.0	12/91	\$495	\$129
5.1	12/92	\$495	\$20 to 5.0 owners; \$129 otherwise
T/MAKER WRITENOW			
1.0	10/86	\$175	—
2.0	12/88	\$195	\$25
2.2	2/90	\$195	\$39**/\$49
3.0	4/92	\$249	\$49**/\$69
WORDPERFECT			
1.0	4/88	\$395	—
1.0.1	8/88	\$395	free
1.0.2	4/89	\$395	free
1.0.3	10/89	\$395	\$10
2.0	1/91	\$495	\$89
2.1	1/92	\$495	\$89
2.1.2	7/92	\$495	\$89

*Price changed 2/92. **Price for first six months. Information provided by the respective software companies. Does not include all maintenance or silent upgrades, or short-term special offers.

want to buy an entirely new package via a mail-order company that offers money-back guarantees, since few developers offer that kind of guarantee (T/Maker and a few others are exceptions). Or you might consider competitive upgrades.

• Compare upgrade policies and prices when shopping for new software. As "Word Processor Upgrades" shows, the price of upgrades over time may equal or exceed the initial purchase price. (Remember, street prices are lower than the suggested list prices shown.)

What Users Want

GENE STEINBERG, A Mac forum assistant on America Online, says "a software publisher should not charge for an update that's necessary to fix a bug or make the

program compatible with a new version of Apple system software." Moreover, some reasonable effort should be made to alert customers as to the existence of bug fixes, he says. He is not alone in craving that information.

"I think that the most unconscionable practice in the industry is not releasing bug lists," says Emil Flock, president of San Francisco-based Computer Hand Holding, a third-party technical-support company. "I think that's irresponsible, and I think users should boycott any company that doesn't provide them."

Them's fightin' words, but I tend to agree. All developers should post lists of bugs, bug fixes, and workarounds on online services, and make written versions of that information available to software owners who call and request it, instead of making that info known only to people with company-certified symptoms. Bug-fix info on demand—let's push to see it from software developers everywhere. **m**

Research assistance by CAROLYN BICKFORD.

Send nominees for sainthood to Service Heroes, Macworld, 501 Second St., San Francisco, CA 94107, or via AppleLink (Macworld1) or America Online (Branscum). Conversely, drop *Conspicuous Consumer* a line if a company is ignoring you.

DOUBLE THE *SPEED* OF YOUR LC/LCII FOR JUST \$599

Introducing the IMPACT™ 030 Accelerator from Extreme Systems *The Accelerator Designed With Your LC/LCII in Mind*

Perhaps no investment will provide a greater return for LC/LCII owners than a new accelerator card from Extreme Systems. For just \$599, the new 32MHz IMPACT™ 030 boosts the performance of your LC/LCII by 200 - 300%! A fully functional 68030 allows the use of System 7's virtual memory, and a 32K external cache improves overall performance. An optional math chip is available for just \$99. With IMPACT installed, the LC or LCII exceeds the performance of a Mac IIfx!

Because IMPACT is designed for your LC/LCII, there are no adapter or installation hassles. Installation is literally a snap. The IMPACT's low 3.9 watt power consumption (within Apple's 4.0 watt recommendation for the PDS slot) won't shorten the life of your computer's power supply. A leading competitor's card, designed as one card + adapter fits all Macs, consumes 9.0+ watts. **Ouch!**

For LC owners, the EXTENDER™ provides LCII features for as little as \$149, or \$219 with a math chip. To increase math performance only, the MATH EXTENDER™ brings it to the LC/LCII for only \$69.

Extreme Systems has been a leading OEM supplier of accelerator cards for 4+ years. All Extreme products come with a 30 Day Money Back guarantee and a 3 Year Limited warranty.

Extreme
S-Y-S-T-E-M-S

ORDER
DIRECT

"ENGINEERED AND MANUFACTURED IN THE USA"

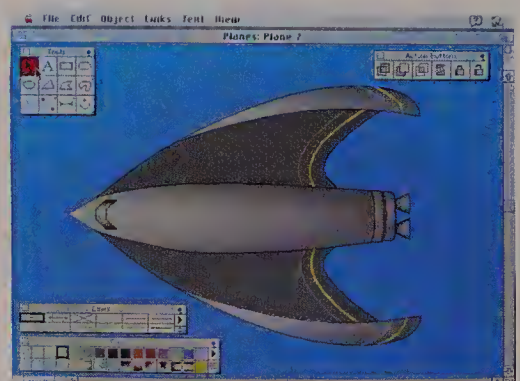
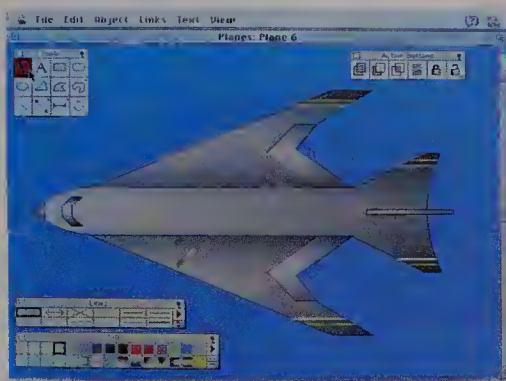
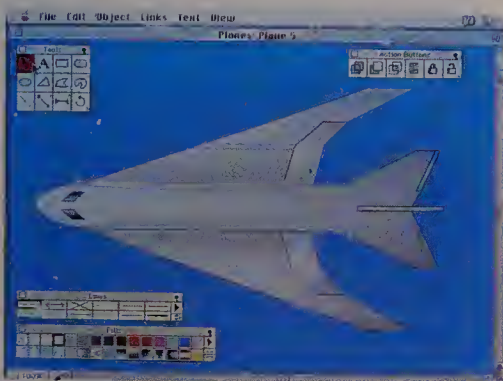
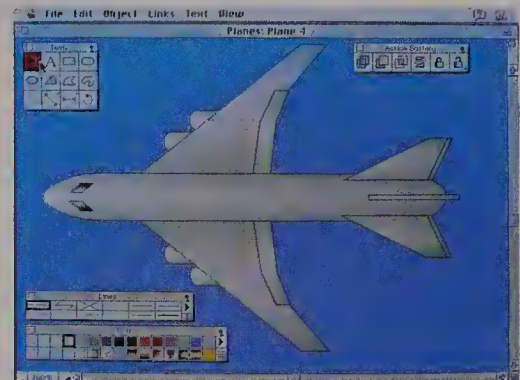
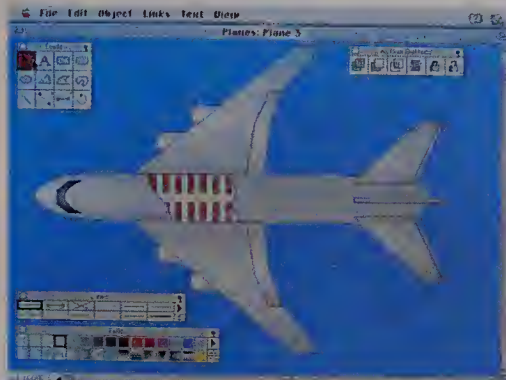
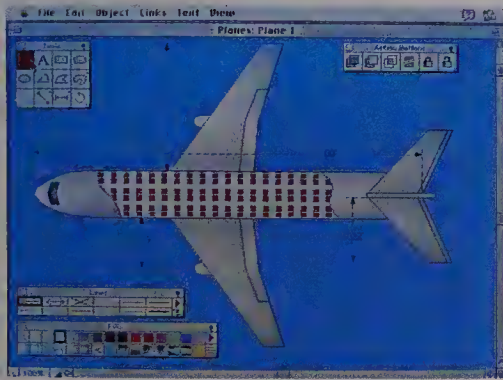
1-800-995-2334

MASTERCARD AND VISA ACCEPTED, PRICES ARE SUBJECT TO CHANGE.
ALL TRADEMARKS ARE PROPERTY OF THE RESPECTIVE HOLDERS.

EXTREME SYSTEMS
1050 INDUSTRY DR.
TUKWILA, WA 98188
(206) 575-2334
FAX: 206-575-3928
AL: EXTREME.SYS



HOW TO CHANGE PLANES USING ONLY ONE FINGER.



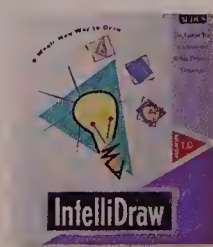
Or, for that matter, a lot of other things. In fact, with Aldus® IntelliDraw™ — for Macintosh and Windows — whatever you draw can easily be changed with a couple clicks of the mouse. (Not to mention how easy it is to draw in the first place.)

It's all thanks to IntelliDraw's 43 new, totally unique, powerful features. Like, for example, the Symmetricon™ and the Connectigon.™

With the Symmetricon you simply draw one side of an object and the other side (or sides) are drawn automatically. On other programs, you'd have to draw each side one step at a time.

As for the Connectigon, it lets you change dimensions and perspective almost instantly (see the plane illustrations, here). Again, using other drawing packages, such modifications would be laborious at best.

And of course, that's only two of the 43. With IntelliDraw, you also get to take advantage of things like alignment guidelines and alignment frames (which automatically align and maintain spacing of multiple objects even if you decide to rearrange, add, or subtract objects in your drawing), master objects (which save a ton of time by letting you change multiple cloned objects simply by changing the one master item), and, as they say, much, much more.



Which logically leads to the following conclusion: what you really need is a free copy of our demonstration video. So call 1-800-685-4190.

We'll not only help you change planes, we'll help change how you feel about drawing.

THE ART OF POWERFUL IDEAS™



This ad was created using Aldus IntelliDraw and PageMaker®. Aldus, the Aldus logo and PageMaker are registered trademarks, and IntelliDraw, Symmetricon and Connectigon are trademarks of Aldus Corporation. Windows is a trademark of Microsoft Corporation. Macintosh is a registered trademark of Apple Computer Inc. © 1992 Aldus Corporation. All rights reserved.

Effective Relief For Macintosh TRAINING Headaches!

Speed Learning

Most people are amazed. They need training. They hate reading manuals and they don't want to pay huge sums for local Macintosh training. At first they feel like giving up in frustration. Then someone tells them about MacAcademy's unique and valuable Video Training Library.

The Price

The first benefit of the training library is the price. Each video is only \$49. While other training companies have raised their prices out of sight, MacAcademy videos cost the same as five years ago.

Selection

The next bit of good news is the huge selection of training videos available from MacAcademy. Below you will find a sampling of the videos currently available.

Quality

No blurry screens. No paid actors reading scripts. No frills. Each MacAcademy video features one of our top trainers recreating the classroom atmosphere and teaching you each program from start to finish.

Effectiveness

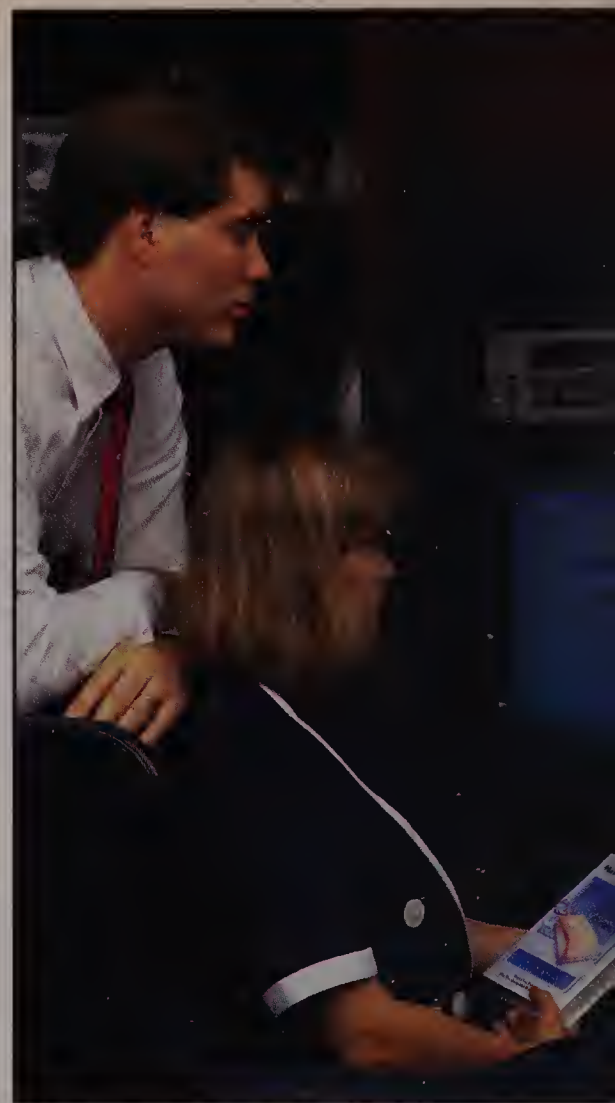
Many of our customers say our videos cut their learning curve by up to 70%! Videos give you the ability to actually *see* each technique on the Macintosh screen. The video allows you to replay, to fast-forward, or to find any particular technique immediately by using our unique counter system.

Flexibility

MacAcademy videos make excellent learning libraries for companies, schools, individuals, and clubs. They can be watched over and over and can even be projected to large groups. New employees can take them home and learn on their own.

Reputation

MacAcademy is the winner of the 1992 **MACWORLD World Class Award**. Readers chose MacAcademy as the top trainer in the nation. No other organization even came close! When it comes to training, MacAcademy has the best reputation in the business. You deserve World Class training at an extremely low price. In addition, all videos carry a complete 30 day guarantee.



30 Day Money - Back Guarantee. If you're not totally satisfied simply send the videos back for a full refund.

To Order

Call 800-527-1914 with credit card or purchase order info or mail or FAX your order to the address and number below. Add \$3 plus \$1/video shipping and handling.

Acius 4th Dimension Video #1	<input type="checkbox"/>
Acius 4th Dimension Video #2	<input type="checkbox"/>
Acius 4th Dimension Video #3	<input type="checkbox"/>
Acius 4th Dimension Video #4	<input type="checkbox"/>
Adobe Illustrator 3.2 Video #1	<input type="checkbox"/>
Adobe Illustrator 3.2 Video #2	<input type="checkbox"/>
Adobe Illustrator 3.2 Video #3	<input type="checkbox"/>
Adobe Photoshop Video #1	<input type="checkbox"/>
Adobe Photoshop Video #2	<input type="checkbox"/>
Adobe Photoshop Video #3	<input type="checkbox"/>
Aldus Freehand Video #1	<input type="checkbox"/>
Aldus Freehand Video #2	<input type="checkbox"/>
Aldus Freehand Video #3	<input type="checkbox"/>
Aldus PageMaker Video #1	<input type="checkbox"/>
Aldus PageMaker Video #2	<input type="checkbox"/>
Aldus PageMaker Video #3	<input type="checkbox"/>
Aldus PageMaker Video #4	<input type="checkbox"/>
Aldus Persuasion Video #1	<input type="checkbox"/>
Aldus Persuasion Video #2	<input type="checkbox"/>
Aldus SuperPaint Video #1	<input type="checkbox"/>
Aldus SuperPaint Video #2	<input type="checkbox"/>
Aldus SuperPaint Video #3	<input type="checkbox"/>

Claris FileMaker Pro Video #1	<input type="checkbox"/>
Claris FileMaker Pro Video #2	<input type="checkbox"/>
Claris FileMaker Pro Video #3	<input type="checkbox"/>
Claris MacDraw Pro Video #1	<input type="checkbox"/>
Claris MacDraw Pro Video #2	<input type="checkbox"/>
Claris MacProject II Video #1	<input type="checkbox"/>
Claris MacProject II Video #2	<input type="checkbox"/>
Claris MacProject II Video #3	<input type="checkbox"/>
Claris MacWrite II Video #1	<input type="checkbox"/>
Claris MacWrite II Video #2	<input type="checkbox"/>
ClarisWorks Video #1	<input type="checkbox"/>
ClarisWorks Video #2	<input type="checkbox"/>
ClarisWorks Video #3	<input type="checkbox"/>
ClarisWorks Video #4	<input type="checkbox"/>
Deneba Canvas Video #1	<input type="checkbox"/>
Deneba Canvas Video #2	<input type="checkbox"/>
Deneba Canvas Video #3	<input type="checkbox"/>
Claris HyperCard Video #1	<input type="checkbox"/>
Claris HyperCard Video #2	<input type="checkbox"/>
Claris HyperCard Video #3	<input type="checkbox"/>
Intuit Quicken Video #1	<input type="checkbox"/>
Intuit Quicken Video #2	<input type="checkbox"/>

Lotus 1-2-3 Video #1	<input type="checkbox"/>
Lotus 1-2-3 Video #2	<input type="checkbox"/>
Lotus 1-2-3 Video #3	<input type="checkbox"/>
Macintosh (6.0 or 7.0) Video #1	<input type="checkbox"/>
Macintosh (6.0 or 7.0) Video #2	<input type="checkbox"/>
Macintosh (6.0 or 7.0) Video #3	<input type="checkbox"/>
Microsoft Excel Video #1	<input type="checkbox"/>
Microsoft Excel Video #2	<input type="checkbox"/>
Microsoft Excel Video #3	<input type="checkbox"/>
Microsoft Excel Video #4	<input type="checkbox"/>
Microsoft Excel Video #5	<input type="checkbox"/>
Microsoft Word Video #1	<input type="checkbox"/>
Microsoft Word Video #2	<input type="checkbox"/>
Microsoft Word Video #3	<input type="checkbox"/>
Microsoft Word Video #4	<input type="checkbox"/>
Microsoft Works Video #1	<input type="checkbox"/>
Microsoft Works Video #2	<input type="checkbox"/>
Microsoft Works Video #3	<input type="checkbox"/>
Microsoft Works Video #4	<input type="checkbox"/>
QuarkXPress Video #1	<input type="checkbox"/>
QuarkXPress Video #2	<input type="checkbox"/>
QuarkXPress Video #3	<input type="checkbox"/>
WordPerfect Video #1	<input type="checkbox"/>
WordPerfect Video #2	<input type="checkbox"/>

Videos can be updated upon release of new software versions for only \$14.95.

\$49^{ea.}

MacAcademy®

Circle 106 on reader service card

477 S. Nova Rd. Dept. MW1192
Ormond Beach, FL 32174
800-527-1914 FAX 904-677-6717

Updates

DECEMBER 1992

THIS SECTION LISTS
THE LATEST VERSIONS OF SELECTED
MAC APPLICATIONS
THAT WERE SHIPPING BY THE TIME
WE WENT TO PRESS.

PRODUCT	V.	REQ.	★	\$
4TH DIMENSION	2.2	1MB/6.0		\$99
A4	3.1	2MB/6.0.5		\$385
ACCESSPC	2.0	1MB/6.0		\$24.95
ACCOUNTANT, INC. PROFESSIONAL	3.0	1MB/6.0.3	*	
ACCUTEXT	3.0	4MB/6.0		\$150
ACTA 7	7.0	512KE/6.0.5	2/92	\$33.50
ADDOTION	2.0	2MB/6.0.5	*	
ADDRESS BOOK PLUS	2.0	1MB/6.0.2	2/92	\$25
ADOBE ILLUSTRATOR	3.2	2MB/6.0.3	*	
ADOBE PHOTOSHOP	2.0.1	2MB/6.0.2		\$199
ADOBE PREMIERE	2.0	4MB/6.0.7	5/92	\$149
ADOBE TYPE MANAGER	2.0.3	1MB/6.0.2		FREE
AFTER DARK	2.0v	512KE/4.1	*	
AGENT DA	2.0	1MB/6.0.5	9/92	\$30
ALARMING EVENTS	1.1	1MB/6.0.2		\$20
ALDUS DIGITAL DARKROOM	2.0	1MB/6.0	*	
ALDUS FREEHAND	3.1	1MB/6.0.5	6/92	*
ALDUS PAGEMAKER	4.2	4MB/6.0.5	5/92	*
ALDUS PERSUASION	2.1	4MB/6.0.5	*	
ALDUS SUPERCARD	1.6	2MB/6.0.4		\$50
ALDUS SUPERPAINT	3.0	1MB/6.0.5	3/92	\$65
ALIAS SKETCH	1.5	1MB/6.0.5	8/92	\$25
ALISMAIL	4.0	1MB/6.0	*	
ALLIANCE POWER TOOLS	2.42	1MB/6.0.4	*	
AMAZING PAINT	1.0.3	512KE/6.0.4		\$15
AME	2.03	1MB/6.0.2		\$49.95
ANTITOXIN	2.0	1MB/6.0		\$15
APPLESHARE FILE SERVER	3.0	512K/3.2	*	
ARCHICAD	4.1	5MB/6.0	6/92	10% OF LIST
ASHLAR VELLUM	2.10	4MB/6.0.2	*	
ASHLAR VELLUM 3D	2.10	4MB/6.0.2	*	
AUTHORWARE PRO	1.7	2MB/6.0.5	*	
AUTOCAD	12	5MB/6.0.5	12/92	\$500
AUTODOUBLER	2.0	1MB/6.0.4	9/92	*
AUTOSAVE II	2.0	512KE/4.2	*	
A/UX	3.0	4MB/6.0.5	11/92	*
AZIMUTH	2.1	1MB/6.0.2		\$45
BACKMATIC	2.0	1MB/4.2	2/92	*

PRODUCT	V.	REQ.	★	\$
BEAGLEWORKS	1.0.1	1MB/6.0.5		FREE
BILL-IT	4.0	1MB/6.0.3		\$29
BUSINESS SENSE	1.6	1MB/6.0.7		\$69
CA-CRICKET PRESENTS	2.0.1	1MB/6.0	*	
CALENDAR	1.1.2	512KE/6.0		FREE
CANOPENER	2.0	512K/3.0		\$29
CANVAS	3.0	1MB/6.0.2	1/92	*
CAPTURE	4.0	1MB/6.0		\$30
CARBON COPY-MAC	2.0	1MB/6.0.5	4/92	*
CAT III	1.2	1MB/6.0	*	
CAUSE	2.12	1MB/6.0	*	
CC-MAIL FOR MACINTOSH	2.0	1MB/6.0.4		\$25
CHECKLIST	2.0	1MB/6.0	2/92	*
CHECKMARK PAYROLL	4.6	512K/4.2		\$50
CINEMATION	1.0	4MB/6.07	7/92	NA
CLARIS CAD	2.0v3	2MB/6.0		\$79
CLARIS RESOLVE	1.1	1MB/6.0.5	1/92	\$20
CLARISWORKS	1.0	1MB/6.0.5	3/92	NA
CLICKCHANGE	1.05.2	1MB/6.0.4		\$5
CLICKPASTE	2.1	1MB/6.0		\$20
CMS UTILITIES	7.0	2MB/7.0		\$25
COLORSTUDIO	1.5	4MB/6.0.5	3/92	*
COMPACT PRO	1.33	1MB/4.2		FREE
COMPUSERVE INFORMATION MANAGER	1.5.1	1MB/4.1	12/92	*
COMPUSERVE NAVIGATOR	3.1	512K/4.1	*	
CONCERTWARE+	4.0	512KE/4.2		\$15
CONNECTIONS	2.1	2MB/6.0.5	11/92	FREE
CONTROL CLASSIC	1.5	4MB/6.0.5	*	
CORRECT GRAMMAR	3.0	1MB/4.2	8/92	\$29.95
DATA CLUB CLASSIC	2.0	2MB/6.0	8/92	*
DATA SHAPER	1.2	1MB/6.0		\$40
DECK	1.03	2MB/6.0.7		FREE
DELTA GRAPH PROFESSIONAL	2.0	2MB/6.0.5	5/92	\$69.95
DESCARTES	1.04	2MB/6.0.3		FREE
D.E.S. DOCUMENT EXCHANGE SYSTEM	4.1	1MB/6.0	*	
DESIGNCAD	3.0	2MB/6.0.5	*	
DESIGNCAD 2D/3D	3.0	2MB/6.0.5	11/92	\$50
DESIGNSTUDIO	2.0	1MB/6.0	*	
DESK	3.08	1MB/6.0.5		\$24.95
DESKPAINT	3.07	1MB/6.0.5		\$19.95
DIGITAL DARKROOM	2.0	1MB/6.0.4		\$80
DISKDOUBLER	3.7	1MB/6.0.2		\$15
DISKEXPRESS II	2.10	1MB/6.0		FREE

continues

V. = version #. Req. = min. RAM and system software required. ★ = last time (in the past year) this or an earlier version was reviewed. \$ = cost of update to registered owners. NA = first version, not applicable. * = contact your dealer for update policy. Blue = new version. Yellow = reviewed product.



PowerBooks speak in big screen color with BookView Imperial.

"Color Me a Rainbow." 256 colors displayed from the PowerBook 140 and 170 with exclusive Computer Care design.

"Color Me Big or Color Me on the Wall." 19" color monitor or overhead projector displays. Share with a whole roomful of people.

"Color Me Versatile." Display 8 bit color on:
Standard VGA Apple 16" color
Super VGA Overhead color
Apple 12" mono NTSC color &
Apple 12" color mono
Apple 13" RGB 19" color
Apple 15" mono

"Want a Mono Presentation?" Standard BookView reproduces the mono screen on Apple, VGA, NTSC monitors and on Overheads. Costs fewer magic beads than the BookView Imperial.



Computer Care

Ford Centre, Suite 1180 420 North Fifth St.
Minneapolis, MN 55401
(612) 371-0061 (800) 950-CARE (2273)
(612) 371-9342 Fax AppleLink: ComCare

Dealer Inquiries Welcome.
Visa, MC, AMEX, Discover Accepted.

All trademarks displayed are the property of the trademark holders and their respective companies

End user circle 73 on reader service card
Dealers circle 76 on reader service card

PRODUCT	V.	REQ.	★	\$
DISKFIT PRO	1.1	1MB/6.0	4/92	*
DISKTOP	4.0.2	1MB/6.0		*
DISPLAY ADBUILDER	1.1	1MB/6.0.3		*
DOCUCOMP II		1MB/6.0	11/92	\$29.95
DOLLARS & SENSE	5.0	512KE/3.2		*
DOUBLE HELIX	3.5	1MB/6.0		\$99
DREAMS	1.1	1MB/6.0.2		*
DYNAPERSPECTIVE	2.3	2MB/6.0.5		\$149
DYNODEX	2.0	1MB/6.0	2/92	\$25
EASY COLOR PAINT	2.02	1MB/6.0.2		*
EHELP	2.0	1MB/4.1		\$445
EMPOWER II	4.0.7	2MB/4.2		*
ENCORE	2.5	2MB/6.0.2		*
ENHANCE	2.0	2MB/6.0.3		\$100
EVOLVE	1.1	2MB/5.3		\$25
EXODUS	4.0	2MB/6.0.3		\$75
EXPRESSIONIST	3.0	1MB/6.0.2		\$49.95
EZ VISION	1.0	1MB/6.0.3		NA
FAIR WITNESS	1.2	1MB/6.0.2	10/92	FREE
FASTBACK PLUS MAC	3.0	1MB/6.0	4/92	\$30
FAST FORMS	2.0	1MB/6.0		\$25
FASTLABEL	3.1	1MB/6.0		\$10
FASTTRACK SCHEDULE	2.0	1MB/6.0		\$89
FILEGUARD	2.7	1MB/4.2		\$18
FILEMAKER PRO	2.0	1MB/6.0		\$89
FILEVISION V	1.1	1MB/6.0.2		*
FINALE	2.6	1MB/6.0.2		FREE
FIRST THINGS FIRST	2.1.2	1MB/6.0.4	4/92	*
FLEXICAD	2.20	5MB/6.0.4		*
FONTMONGER	1.0.5	2MB/6.0.2		FREE
FONTGRAPHER	3.5	1MB/4.2	11/92	*

PRODUCT	V.	REQ.	★	\$
FONTSTUDIO	2.0	1MB/6.0.5		*
FORM Z	2.0	2MB/6.0		*
FOXBASE+/MAC	2.01	1MB/6.0		FREE
FRAMEMAKER	3.0	1MB/6.0	3/92	*
FREEDOM OF PRESS LIGHT	3.0.3	2MB/6.0.3		\$25
FREEDOM OF PRESS PROFESSIONAL	3.0.2A	4MB/6.0.3		\$250
FULL IMPACT	2.0	1MB/6.0		\$50
FULLWRITE PROFESSIONAL	1.5	2MB/6.0.2		*
GENERIC CADD	2.0	2MB/6.0.5		\$100
GEOQUERY	3.02	1MB/6.0	11/92	*
GOFER	2.0	1MB/4.1	6/92	\$25
GQL	3.0	2MB/5.0		\$75
GRACELAN	2.0	1MB/6.0.5		*
GRACELAN UPDATE MANAGER	1.1	2MB/6.0.5		FREE
GRADE MACHINE	5.0	1MB/6.0.5		50% OF LIST
GRAMMATIK MAC	2.05	1MB/6.0		\$15
GREAT GANTT	1.4	1MB/6.0		*
GREAT PLAINS ACCOUNTING SERIES	6.0	1MB/4.2		*
GREATWORKS	1.0	1MB/6.0.2	1/92	NA
GUIDE	2.0	512K/4.1		\$50
HAND-OFF II	2.2.5	2MB/6.0.2		FREE
HELP	1.0.3	1MB/6.0	2/92	FREE
HYPERCARD	2.1	1MB/6.0.3		\$49
HYPERDA	2.1	1MB/6.0		\$29
ICON-IT	2.1	1MB/6.0.2		*
IF:X FORMS DESIGNER	1.1	1MB/6.0		FREE
IGOR	1.2	2MB/4.2		\$35
IMAGE GRABBER	3.0	1MB/6.0	2/92	\$18
IMAGESTUDIO	1.7	1MB/6.0		\$99

PRODUCT	V.	REQ.	★	\$
INFINI-D	2.0	4MB/6.0.4		*
INITPICKER	2.02	1MB/6.0		\$10
INSIDE OUT	II	1MB/6.0.2		*
INSPIRATION	3.0.1	1MB/4.2		*
INSTANT-EXPERT PLUS	2.0	1MB/5.0		FREE
INTOUCH	1.1.7	512KE/4.2	3/92	FREE
KIWIENVELOPES	3.1	512KE/4.1		*
LABVIEW	2.2	4MB/6.0.5		*
LANGUAGE SYSTEMS FORTRAN	3.0	2MB/6.0.4		\$100
LAPLINK MAC III	3.2	512K/2.0		FREE
LAPLINK MAC PLUS III	3.0	512K/2.0		*
LASERPAINT COLOR II	1.02	1MB/6.0.3		FREE
LETRASTUDIO	2.0	2MB/6.0	10/92	*
MACANALYST	3.1	2MB/6.0		*
MACARCHITRION	5.5	2MB/6.0.3		*
MACBRAIN	3.0	1MB/6.0.5		\$295
MACDRAFT	2.1	1MB/6.0.2		*
MACDRAW II	1.1	1MB/6.0		*
MACDRAW PRO	1.5	2MB/6.0.5		*
MACENVELOPE	5.1	1MB/4.2		\$29.95
MACENVELOPE PLUS	2.0	512KE/3.2		\$50
MACFLOW	3.7	1MB/6.0		\$30
MACFORTRAN II	3.1	4MB/6.0.3		\$99
MACGLOBE	1.0	1MB/6.0.4	4/92	*
MACLABELPRO	1.5	1MB/6.0.3		\$19.95
MACLINKPLUS/PC	6.0	1MB/6.0.3	3/92	*
MACMONEY	3.5	512KE/4.0		\$12
MACPAINT	2.0	512KE/3.2		\$25
MACPALETTE II	2.2	1MB/6.0.5	9/92	*
MACPHONEBOOK	3.0	1MB/6.0		*
MACPLOT PROFESSIONAL	4.0	1MB/6.0.5		*

Turn your Mac Into a Professional Trading Station!

Professional Analyst, from Trendsetter Software, let's you analyze real-time market data from Signal instantly.

Designed for the Mac, **Professional Analyst** lets you:

- Monitor your choice of 500 symbols
- Create a wide variety of charts, including Japanese Candlesticks.
- Instantly access the best technical studies including Gann, Fibonacci and computer generated trend lines (a Trendsetter exclusive).
- Display studies in the same window as your chart with up to 14 studies per chart and 9 charts per screen.
- Update charts each time a trade occurs
- Get audio/visual alarms when your Buy/Sell points are reached.



Custom layouts "remember" every aspect of your personal design.

Call Today!

1-800-825-1852 Ext. 27

Trendsetter Software • 2020 N. Broadway, Ste. 102 • Santa Ana, CA 92706 • 714/547-5063 Fax

Signal

Trendsetter

PRODUCT	V.	REQ.	★	\$
MACPLOT STANDARD	4.0	1MB/6.0.5	*	
MACPROJECT II	2.51	1MB/6.0		\$99
MACRECORDER	2.03	512K/3.2	*	
MACRENDERMAN	1.1	5MB/6.0.5		\$75
MACROMIND DIRECTOR	3.1	2MB/6.0.5		\$149
MACSCHEDULE	2.5	1MB/6.0		\$30
MACSCHEDULE PLUS	1.0.5	1MB/6.0		FREE
MACSPIN	3.01	512K/4.3	3/92	*
MACTERMINAL	3.0	512K/3.2		\$65
MACTOOLS	2.0	2MB/6.0	10/92	\$55
MACTOPS	3.1	1MB/6.0.5	*	
MACVISION	4.1	2MB/6.0.4	*	
MACWRITE II	1.1v2	1MB/6.0		FREE
MAGIC	1.1	2MB/6.0.7	8/92	FREE
MANAGING YOUR MONEY	4.0	1MB/6.0.3	*	
MANAPRO GENERAL LEDGER	3.1	1MB/6.0		NA
MAPLE V		2MB/6.0.7	5/92	*
MARCOPOLO	1.1	1MB/6.0		FREE
MARKET ANALYZER PLUS	2.0	2MB/6.0.2		\$99
MARKETMASTER	3.5	2MB/6.0.3	*	
MARKUP	2.0	1MB/6.0		\$30
MASTERFINDER	1.1	1MB/6.0.5	11/92	*
MASTERJUGGLER	1.57	512K/6.0		\$15
MASTERPLAN	1.03	512K/6.0.5		FREE
MASTER TRACKS PRO	5.0	1MB/4.1		\$45
MATHCAD	2.06	1MB/6.0.2		FREE
MATHEMATICA	2.0	1MB/6.0	*	
MATHTYPE	3.0	1MB/6.0.3		\$49
MATHWRITER	2.0	2MB/6.0.5	*	
MATLAB	4.0	1MB/3.0	*	
MEDIATRACKS	1.01	1MB/6.0.2		FREE

PRODUCT	V.	REQ.	★	\$
MENUFONTS	4.01	1MB/6.0.5	5/92	\$20
METADESIGN	3.0	1MB/6.0		\$49.95
METAPICT	2.0	512KE/4.5		\$69
MICHAEL'S DRAW	1.0	1MB/6.0.5		NA
MICROPHONE II	4.0	2MB/6.0	7/92	*
MICRO PLANNER MANAGER	1.0	2MB/6.0		*
MICROSOFT EXCEL	4.0	1MB/6.0.2	10/92	*
MICROSOFT FILE	2.0	512K/3.2		*
MICROSOFT MAIL	3.1	1MB/6.0.2		*
THE MICROSOFT OFFICE	2.5	1MB/6.0.2		*
MICROSOFT POWERPOINT	2.01	1MB/6.0		FREE
MICROSOFT PROJECT	3.0	2MB/6.0.4		\$149
MICROSOFT WORD	5.0	512KE/3.2	4/92	\$129
MICROSOFT WORKS	3.0	1MB/6.0.5		\$79
MINDLINK	2.0	1MB/6.0		*
MINDWRITE	2.1	512KE/4.2		*
MINICAD+	4.0	1MB/6.0		*
MINITAB	8.2	1MB/6.0.1	6/92	*
MOCKPACKAGE PLUS UTILITIES	4.4	512KE/3.2		\$15
MODELSHOP II	1.1	1MB/6.0.2	3/92	FREE
MORE	3.1	1MB/4.1		*
MR. FILE	1.1.1	1MB/4.2		FREE
MULTI-AD CREATOR	3.5	2MB/6.0.3		\$149
MULTILEDGER	2.0	512K/3.2		\$75
MUSICPROSE	2.1	1MB/6.0		FREE
MUSIC PUBLISHER	2.5.2	1MB/6.0		\$15
MYADVANCEDMAILLIST	3.0	512K/4.1		*
MYDISKLABELER III	3.0.4	1MB/6.0		*
M.Y.O.B.	3.0	1MB/6.0		\$79
MYTIMEMANAGER	4.0	1MB/6.0.3		*
NETMINDER ETHERNET	2.1	2MB/6.0		\$100

PRODUCT	V.	REQ.	★	\$
NETWORK BUNDLE FOR THE MAC	3.0	512K/3.2		*
NETWORK SUPERVISOR	2.0	2.5MB/6.0.3	8/92	*
NISUS	3.06	1MB/6.0.2	8/92	*
NORTON UTILITIES FOR MACINTOSH	2.0	1MB/6.0.4	10/92	\$39
NOVALINK PROFESSIONAL	2.1	2MB/6.0.7	7/92	FREE
NOW UTILITIES	4.0	2MB/7.0	2/92	\$29
NUBASE PRO	1.54	1MB/4.1	9/92	*
OMNIPAGE	3.0	4MB/6.0		\$25
OMNIPAGE PROFESSIONAL	1.0	5MB/7.0		*
OMNIS 7	1.1	2MB/6.0	12/92	FREE
ONCUE II	2.0	512K/6.0.2		\$34.95
ON LOCATION	2.0	1MB/6.0.5	6/92	\$25
ON SCHEDULE	2.0	1MB/3.0		*
PACO	2.0	1.5MB/7.0		*
PANORAMA	2.03	1MB/6.0	5/92	*
PEACHTREE ACCOUNTING	1.2	1MB/6.0.5		*
PERFORMER	3.61	2MB/6.0.2		*
PERSONAL PRESS	2.0	1MB/6.0.3		\$39.99
PHONENET LIAISON	3.0	1MB/4.2		\$75
PHOTOMAC	1.5	2MB/6.0.3		\$75
PICKTURE	1.0	512K/6.0		NA
PICTUREBOOK+	1.0	1MB/6.0	2/92	*
PICTUREPRESS	2.0.4	2MB/6.0.4		*
PIXELPAINT	2.1	2MB/4.1		*
PIXELPAINT PROFESSIONAL	2.01	4MB/6.0.5		\$125
PLAINS & SIMPLE	1.06	1MB/3.2		*
PLANISOFT	1.3	512K/4.2		\$48
POSTERWORKS	2.1	2MB/6.0.3		*

continues



IT'S HERE!

The Source for Macintosh Services

The Macintosh Services Directory is the official services guide published in cooperation with Apple Computer, Inc.

It is the source for locating Macintosh service providers:
Application Development • Database Experts • Desktop Publishing •
Multi-Platform Development • Marketing Services • Support Services

Whether your need is large, small, business or personal,
find the right people to help you.

Over 2000 resources in 76 different categories.

Also available at Barnes & Noble, B. Dalton, Walden Books, Tower Books
and independent computer Bookstores in the United States and Canada

TO ORDER CALL DIRECT

1-800-927-1200

THE REASON YOUR LASER TO PRINT, AS EXPLAINED BY BRIDGE TOLL BOOTH



You fight traffic to get to work. You fight traffic to get home from work. The last thing in the world you should have to do is fight traffic at work. Yet, if you're like a lot of Mac users, you do it every day.

Each time you hit the print key, you send thousands of tiny information bits scurrying through the wires. Often they arrive at the printer at the same time as someone else's tiny information bits, resulting in a

situation not unlike the one you see here. Leaving the controller to somehow make sense of it all.

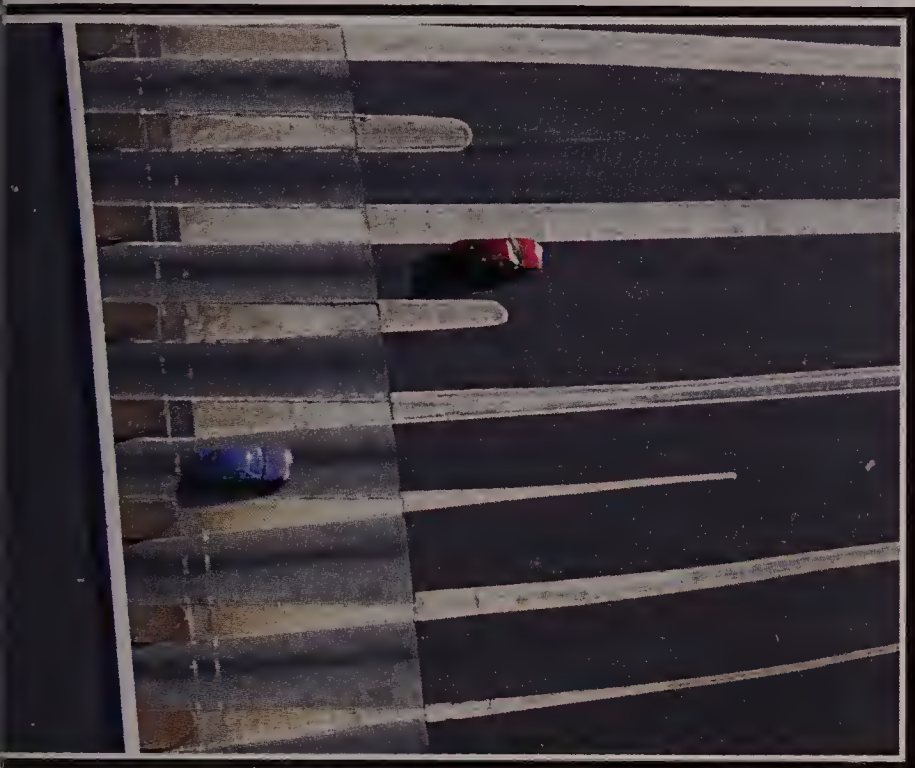
It is this exact scenario that inspired us to build the new COMPAQ PAGEMARQ Laser Printers.

Using a high-throughput controller developed by Compaq, they process complex files in a fraction of the time it takes ordinary machines, allowing you to print as fast as 15 and 20 pages per minute. Which means, quite simply, your printer could actually end up waiting for you, instead of the other way around.

These new laser printers

*This service, provided by contract service providers, specific to hardware products and may not be available in certain geographic locations. Consult the Compaq Customer Support Center for further details. © 1992 Compaq Computer Corporation. All Rights Reserved. COMPAQ registered U.S. Patent and Trademark Office. PAGEMARQ and

PRINTER TAKES SO LONG THE GEORGE WASHINGTON AT RUSH HOUR.



And with the added benefit of three standard TwinTrays the PAGEMARQ 20 Laser Printer allows you to print up to 1,500 sheets without having to reload.

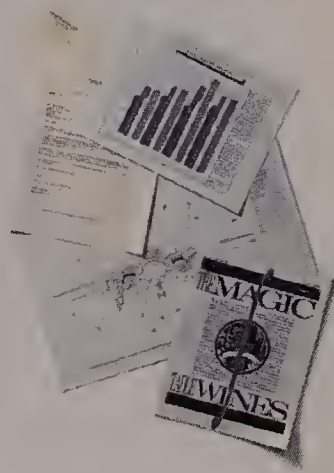
Of course, these printers are backed by CompaqCare, our comprehensive service and support program. Which

includes a one-year limited warranty and on-site* service in both the U.S. and Canada. All at no charge.

For more information, simply call 1-800-345-1518 in the United States, or call 1-800-263-5868 in Canada.

And learn about a new line of printers that can eliminate your bottlenecking problems forever.

Or at least until 5 o'clock.



PAGEMARQ Printers can handle various page sizes up to 11" by 17". And with three standard TwinTrays, they can hold up to 1,500 sheets of paper—more than any other desktop printer.

Send Fax

Add an Internal FAX Modem and you can practically turn your Macintosh into a personal fax machine. One that will send and receive sharp, clear PostScript quality faxes in any size up to 11" by 17".



also come standard with 35 PostScript fonts. And if that isn't enough, you can expand your type library even further simply by adding 1- and 2-MB Programmable Font Modules. Or you can cram an entire typeshop into your laser printer by adding an internal 60-MB Hard Drive. Which lets you store up to 1,500 fonts, avoiding the hassle of continually

having to download from your computer.

In addition, there's a new 800 x 400 COMPAQ High-Resolution Mode that delivers razor-sharp type and graphics as well as smooth, high-definition gray scales.

Another feature you'll appreciate is an 11" by 17" page-handling capacity, which lets you print oversized layouts in a single pass.

CompaqCare are trademarks of Compaq Computer Corporation. Product names mentioned herein may be trademarks and/or registered trademarks of their respective companies.

Circle 174 on reader service card

VITALITY. YOU CAN FEEL IT IN YOUR BONES.



What you can't feel, however, is osteoporosis — the bone-thinning disease that affects 25 million Americans, causing bones to weaken and break.

When hip, spine or wrist fractures occur, osteoporosis can rob you of your independence by making even the most routine activities impossible.

As many as one out of every two women past menopause — and one out of every five men — will develop fractures because of osteoporosis. While osteoporosis can't be cured, it can often be prevented. To learn more, speak to your doctor. Or contact us at 1-800-223-9994.



National Osteoporosis Foundation.
We Have A Vital Interest In Your Bones.

2100 M. Street, N.W., Suite 602, Washington, D.C. 20037-1207

UPDATES

PRODUCT	V.	REQ.	*	*
POWERDRAW	3.0	1MB/6.0		*
POWERSTATION	2.5.5	512K/4.1		*
POWERTRAX	1.1	1MB/6.0.5		FREE
PRACTICA MUSICA	2.2	512K/3.2		*
PRESENTER PROFESSIONAL	1.2	5MB/6.0.5		\$95
PRO-CITE	2.0	1MB/6.0.2	6/92	\$95
PRODIGY	3.1	1MB/6.0		FREE
PROFESSIONAL COMPOSER	2.3	1MB/6.0.3		FREE
PROGRAPH	2.5	2MB/6.0	6/92	\$49.99
PROTOTYPER	3.0	1MB/4.1		\$99
PUBLISH IT	2.0	1MB/6.0		*
PUBLISH IT EASY	2.5	1MB/4.2		\$49.95
PYRO	4.0.1	512K/4.1		\$15
QUARKXPRESS	3.1	2MB/6.0.5	7/92	*
QUICKDEX II	2.3	1MB/6.0.5		*
QUICKEN	3.0	1MB/6.0.5		*
QUICKKEYS	2.1.2	1MB/6.0.2		*
QUICKLETTER	1.1.5	1MB/6.0		\$25
QUICKMAIL	2.5.1	512KE/3.2		*
QUICKSHARE	2.0	512KE/3.2		*
QUICKSHOT	2.1	1MB/4.2		\$5
RAGTIME 3	3.1	2MB/6.0		\$150
RAY DREAM DESIGNER	2.2	4MB/6.0.5	9/92	*
READ-IT OCR PERSONAL	3.0.A	2MB/6.0.5		\$49
READ-IT OCR PROFESSIONAL	3.0	2MB/6.0.3		*
READYSETGO	4.5	1MB/6.0		*
RESORCERER	1.1	1MB/6.0		FREE
RETROSPECT REMOTE	1.3	1MB/6.0		*
REUNION	3.0	2MB/6.0.5		\$39
RIGHTWRITER	5	1MB/6.0		*
RIVAL	1.1.9x	1MB/6.0		FREE
RUNPC	3.1.2	512K/6.0.4		NA
SAM	3.0	1MB/6.0		\$29
SCHEDULEMAKER	3.01	1MB/6.0		\$25
SCSI PROBE	3.4	2MB/6.0		FREE
SCULPT 3D	2.1	BMB/6.0.5		FREE
SCULPT 4D	2.1	BMB/6.0.5		\$1000
SEND EXPRESS	2.1	1MB/6.0.2		*
SENSIBLE GRAMMAR	2.1	1MB/5.0	11/92	\$30
SHADOWWRITER	2.0	2MB/6.0.3		\$20
SILVERLINING	5.31	1MB/6.0		*
SMALL BUSINESS ACCOUNTING SYSTEM	2.1	512K/4.1		FREE
SMART ALARMS	3.07	1MB/6.0.2		\$28
SMARTCOM II FOR THE MAC	3.3	1MB/6.0.5		*
SMARTFORM DESIGNER	1.1	1MB/6.0		FREE
SMARTSCRAP & THE CLIPPER	2.1	1MB/6.0.3		\$40
SNAP	3.2	1MB/3.0	2/92	*
SOUND DESIGNER II	2.2	2MB/6.0.5		*
SPELLING COACH PROFESSIONAL	4	512KE/6.0.5		*
SPELLSWELL	2.3	512K/3.2		\$20
SPINNAKER PLUS	2.0	2MB/6.0		\$45
STATISTICA/MAC	3.0	2MB/6.0.2		*
STATUS MAC	3.0	1MB/6.0	5/92	*
STATVIEW	4.0	2MB/6.0.4	11/92	\$149
STEPPING OUT II	2.02	1MB/4.1		FREE
STICKYBUSINESS	1.4	512KE/6.0.3		*
STRATAVISION 3D	2.5	2MB/6.0.3		\$99
STUDIO/8	2.0	2MB/6.0.5		\$30
STUDIO/32	1.2	5MB/6.0.5		FREE
STUFFIT CLASSIC	1.6	1MB/6.0		*

PRODUCT	V.	REQ.	*	*
STUFFIT DELUXE	2.0	1MB/6.0		FREE
SUITCASE	2.1	1MB/4.1		FREE
SUPERANOVA	1.11	1MB/6.0.2		FREE
SUPERCARD	1.5	1MB/6.0.5		\$55
SUPERGLUE II WITH GLUENOTES	2.01	512K/6.0		\$25
SUPERLASERSPOOL	3.0	2MB/6.0		\$30
SUPEROFFICE	2.02	2MB/6.0.7		FREE
SUPERSPOOL	5.0	512K/4.1		\$30
SWIVEL 3D	2.0	1MB/6.0.5		\$75
SWIVEL 3D PRO	2.0	4MB/6.0.5		\$150
SYSTAT	5.2	2MB/6.0		*
TASK MONITOR	4.0	1MB/6.0.3		FREE
TASTE	1.02c	2MB/6.0.2	5/92	FREE
TEMPO II PLUS	3.0	1MB/4.2		\$39.95
TEXTPERT	3.01	1MB/6.0		FREE
TEXTSCAN	4.0	1MB/6.0		\$75
THEORIST	1.1	1MB/6.0		*
THINK C	5.0	2MB/6.0	7/92	\$89
THINK PASCAL	4.0	1MB/6.0	8/92	\$77
THOUGHTPATTERN	1.2.2	1MB/6.0		FREE
THUNDERWORKS	1.3	1MB/6.0.2		*
TILES	1.0.1	2MB/6.0.4	5/92	NA
TIMBUKTU	4.0.1	1MB/4.1		*
TIMBUKTU/REMOTE	3.0	1MB/4.1		*
TIMESLIPS III	2.1	1MB/6.0.2	9/92	*
TOPDOWN	3.1	1MB/6.0.4		\$99
TOPSCAN PLUS	1.0	2MB/6.0.5		NA
TOUCHBASE	2.0	1MB/6.0.5	8/92	*
TRAPEZE	2.1	1MB/6.0.2		FREE
TRUEFORM	2.1	1MB/6.0		FREE
TSCRIPT	3.2	1MB/6.0		\$60
TYPEALIGN	1.04	1MB/6.0		FREE
TYPEREUNION	1.01	1MB/6.0		FREE
TYPESTYLER	2.0	2MB/4.0		\$25
ULTRAPAINT	1.03	1MB/6.0.2		FREE
UNIVERSAL SOFTPC	2.5	2MB/6.0		\$99
VENTURA PUBLISHER	3.2	2MB/6.0.5		\$59
VERSACAD/MACINTOSH EDITION	4.0	2MB/6.0.5		\$295
VERSATERM	4.6	BOOK/4.2		\$20
VERSATERM PRO	3.6	BOOK/4.2		\$20
VIDEOPAINT	1.1	2MB/6.0.3		\$35
VIREX	4.0	1MB/6.0.2		\$25
VIRTUAL 2.0 FOR 030	2.0.4	2MB/6.0		FREE
VIRTUAL 2.0 FOR MAC II	2.0.4	2MB/6.0		FREE
VIRTUAL 3.0 FOR MAC PLUS	2.0.4	2MB/6.0		FREE
VISION	1.4	2MB/6.0.3		\$49.95
VISTACOM	3.1.1	1MB/6.0		\$125
WHITE KNIGHT	11.14	1MB/6.0.2		*
WILLMAKER	4.0	512K/4.2		\$29.95
WINGZ	1.1	1MB/6.0		FREE
WORD FINDER	2.0	512K/3.2		*
WORD FINDER PLUS	1.0	512KE/6.0		\$19.95
WORDPERFECT FOR THE MACINTOSH	2.1	1MB/6.0.3	6/92	*
WORDPERFECT OFFICE	3.01	1MB/6.0.5		NA
WORDSCAN	1.0	4MB/6.0.5	3/92	NA
WORDSCAN PLUS	1.0	4MB/6.0.5	6/92	NA
WRITENOW	3.0	512K/4.2	9/92	\$49.95

To have your products considered for this section, send a press release to *Updates*, *Macworld*, 501 Second St., San Francisco, CA 94107, or send a fax to 415/442-0766.

The Mac Zone™

Established 1986

- \$ Low Prices
- ✓ Quality Products
-  Latest Releases
-  \$3 Overnight Shipping
-  Over 2,400 Products In Stock
-  Hassle-Free Ordering
-  Knowledgeable Sales Advisors
-  Call 1-800-248-0800



Win A PowerBook!

(\$3,499 Suggested Retail Price.)



NEW!
Magnet 1.0

See Our PowerBook Section

FREE Mouse Pad
with Kaboom!

See Our Utility Section

FREE Lotus 1-2-3
Wrist Watch with your
Competitive Upgrade

See Our Spreadsheet Section

FREE Quicken 3.0
with ClarisWorks

See Our Integrated Section

Competitive Upgrade
to Claris FileMaker Pro

See Our Database Section



PHOTO COURTESY OF APPLE COMPUTER

Everyone Wins with Lotus 1-2-3 Competitive Upgrade Sweepstakes

No Purchase Necessary!

(See Our Spreadsheet Section)



Run PC Applications on your Mac with Insignia Solutions

SoftNode: **\$104**

Run NetWare Software on your Macintosh

With SoftNode, both Universal SoftPC and SoftAT can run Novell NetWare PC client software on your Macintosh. Now you can build on your existing PC LAN hardware and software investment and fully integrate SoftPC into workgroups. SoftNode effectively makes any Macintosh equipped with Universal SoftPC or SoftAT a PC client on a Novell PC network. If you have any vendor's Ethernet card installed on your Macintosh, you can use it with SoftNode to run NetWare client software on SoftPC. Insignia Solutions #04570

Entry Level SoftPC: **\$125**

Run Text-Based MS-DOS Applications on Low-Cost Macintosh Computers.

Designed to provide PC compatibility at an excellent price, Entry Level SoftPC emulates an IBM PC/AT and is ideal for text-based applications and limited graphics programs. Insignia Solutions #04540

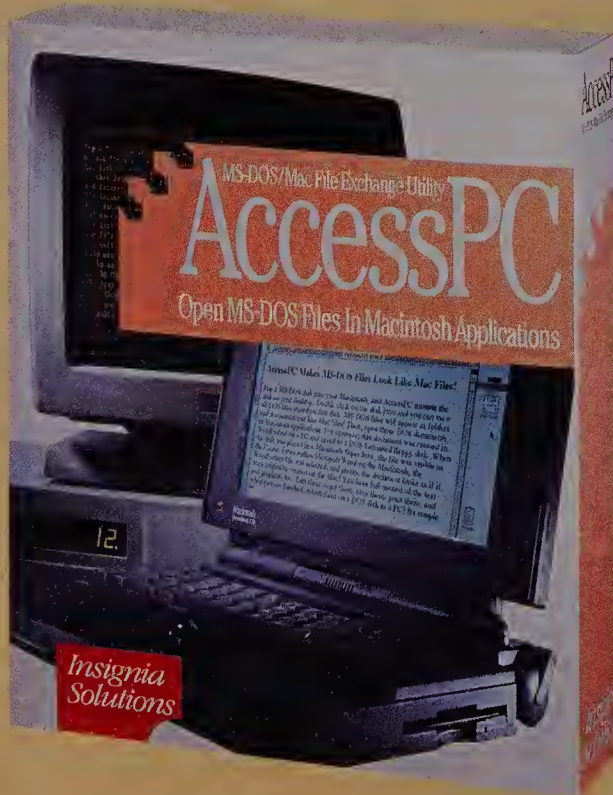


\$59

Access PC:

Now Your MS-DOS Files Can Look Just Like Macintosh Files

Access PC is a system utility that helps you use MS-DOS documents in your Macintosh. Just pop any MS-DOS disk into a Mac SuperDrive, double-click on the disk icon that appears, and all MS-DOS files appear as if they were Macintosh files. Your MS-DOS files look and act just like Macintosh files. Directories appear as folders, and data files have the familiar Macintosh document icon. You can select any file and open it in a Macintosh application. Insignia Solutions #03664



SoftAT: **\$294**

For the Most Demanding PC Programs

SoftAT is the highest performance product in the SoftPC family. Designed for use on the most powerful Macintosh computers, SoftAT expands the basic PC emulation to include support for more demanding applications. SoftAT includes all the features of Universal SoftPC, and adds three key features to help you run graphics-intensive PC programs such as AutoCAD (level 10) and Flight Simulator. Insignia Solutions #04768

Universal SoftPC: **\$194**

Run MS-DOS Programs on any Macintosh

Universal SoftPC creates an MS-DOS window on any Macintosh computer. You can load MS-DOS programs into your Macintosh—even those that come on a PC CD-ROM—and use them like you would on a basic IBM 286 AT computer. It's that simple. With Universal SoftPC, your Macintosh becomes a PC. The mouse can be used in programs that support a Microsoft PC mouse. Universal SoftPC even supports telecommunications programs and Mac printers. Insignia Solutions #04541

Insignia Solutions

WE SHIP WORLDWIDE! CALL 1-206-883-3088



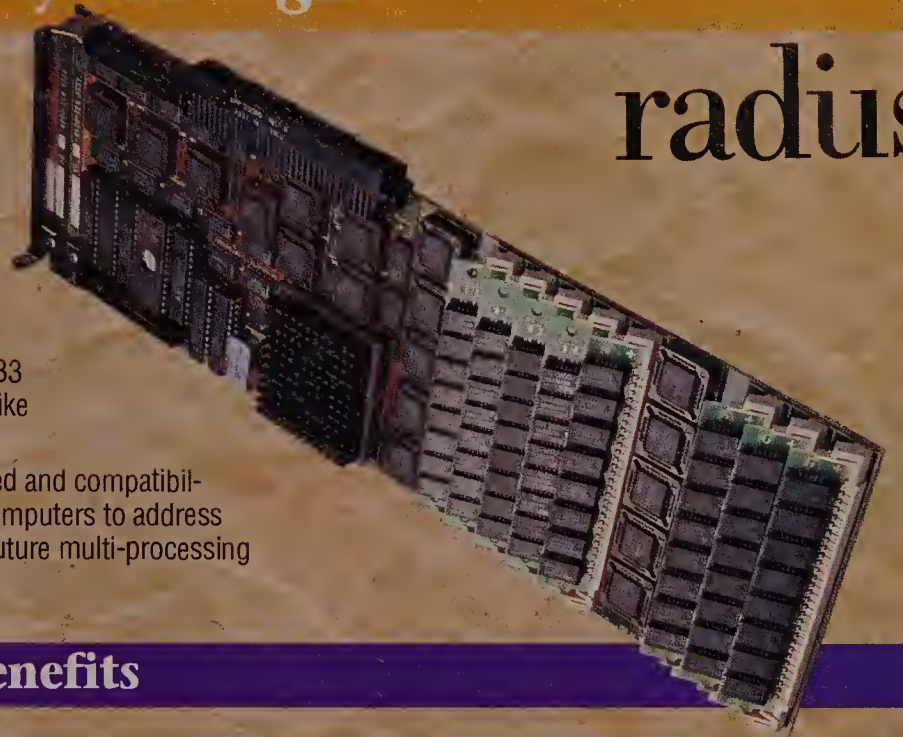
Rocket Your Productivity Through The Roof

Radius Rocket 33 \$2175

Blast your II, IIx, IIcx or IIci computer into another dimension of performance with the Radius Rocket 33 accelerator. This awesome 33MHz Motorola 68040 powerhouse increases the processing speed of the original Mac II by up to eight times, making it even faster than the Quadra 700 in most cases—and it costs less than Apple's own upgrade. You won't believe how fast your desktop publishing and productivity applications will run. The Rocket 33 includes an integrated math coprocessor so it's ideal for math-intensive applications like CAD, 3D rendering and scientific analysis.

Rocket 33 also allows you to specify cache settings by application for maximum speed and compatibility. MODE32 from Connectix (also included) enables Rockets in Mac II, IIx and IIcx computers to address more than 8MB of memory with System 7. In addition, Rocket 33 is compatible with future multi-processing software from Radius. Radius #05250

radius™



Key Features

- 33MHz 68040 processor
- Flexible memory architecture
- Connectix MODE32 included
- Application cache settings
- Built-in Processor Direct Slot
- QuickDraw acceleration with Radius display interfaces
- QuickCAD display list processing

Benefits

- Increases processor performance up to 8 times faster than the original Mac II
- Supports 4 to 128MB of standard DRAM in 8 SIMM slots
- Enables Rockets in Mac II, IIx and IIcx computers to address more than 8MB of memory with System 7
- Allows you to specify the cache mode used by the 040 for each application for maximum speed and compatibility
- Provides faster screen response for routine operations like scrolling, window resizing and area fills
- Provides faster screen response for routine operations like scrolling, window resizing and area fills
- Accelerates vector-based functions like zooms and redraws for select CAD applications



RocketShare

\$2134

Take your Mac where no Mac has been before! RocketShare gives you simultaneous use of your Mac's CPU and multiple Radius Rockets. The resulting "true" multi-tasking capability dramatically increases the productivity of your Mac. Any process that ties up the Macintosh CPU for extended periods of time can be off-loaded to one of the Rockets, thus freeing up your Mac CPU so you can keep working productively! Dump your PostScript rasterization ("RIP'ing") off to one of your Rockets and go on working on your layouts. Let one of your Rockets do the scanning while you continue on with your word processing. The possibilities are endless.

Under RocketShare, each Rocket in the system appears as an additional CPU that is launched independently of your main Mac processor. RocketShare maintains full functionality of the motherboard processor, providing 100% compatibility with pre-Rocket systems. If your time is valuable, you cannot afford to be without it. #06004

Key Features

- Cooperative multiprocessing
- Foreground/background processing
- Parallel processing
- BusNet

Benefits

- Allows the concurrent use of the Macintosh and one or more Radius Rockets
- Time-consuming tasks may be off-loaded to Rockets for processing in the background while the Macintosh is used for interactive, foreground work
- Applications which distribute processing over a network of Macintosh computers using System 7's IAC capabilities run without
- Rockets and the Macintosh communicate over NuBus at speeds superior to computers networked via Ethernet or LocalTalk

OUR COMMITMENT:

At the Mac Zone, we provide you with more than just great prices and the widest selection available—we have the service and support to earn your continued business.



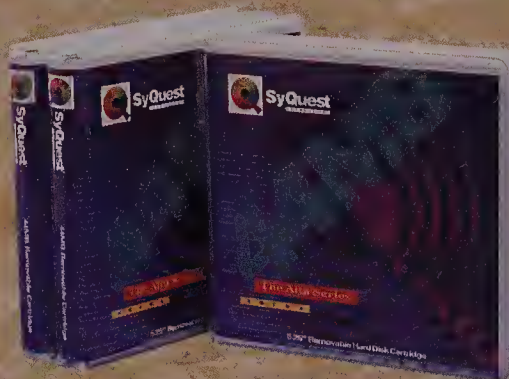
MacTurbo Plus Modem

\$89

Our MacTurbo modem has all the features you would expect to find on modems twice the price—and at 6" by 4" it's compact enough to easily tuck away in a briefcase. An eight-light status panel keeps you informed as to the status, the nonvolatile memory stores phone numbers even when the modem is turned off. MacTurbo #00408 ✓

#00977 ✓ MacTurbo 24/96 Fax Modem ..\$149

Buy 10 and SAVE!



SyQuest 44MB Cartridges

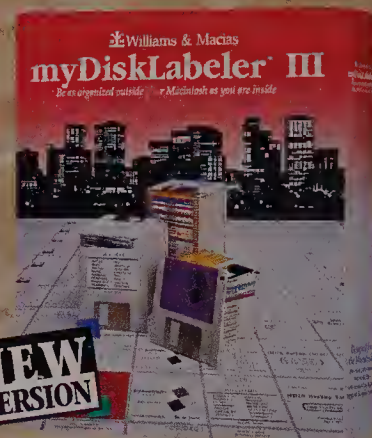
\$69

44MB removable cartridges provide reliable, portable storage. Top-quality construction ensures long life.

SIMMs & SyQuest 1 Pk. #02183

#05442 SyQuest 44 MB 5 Pk\$328

#05443 SyQuest 44 MB 10 Pk\$649



\$41

myDiskLabeler III 3.2

Imagine your SyQuest disk cartridges with attractive removable labels, printed with complete file directories and graphics! You can print as many as 1000 file names on a single label and it's compatible with both LaserWriter and ink jet printers. It displays directories on the screen or prints them on labels and cover inserts or you can print them out on standard 8.5"x11" paper. myDiskLabeler reads and sorts 3.5" disks and hard drives too. Package does not include labels and case cover inserts.

Williams & Macias #03324

#05558 SyQuest Cartridge Labels\$14

Look for these Categories

Accelerators
Accessories
Business Essentials
Cables
CAD/3D Design
CD-ROM & MIDI
Clip Art
Communication
Database
Desktop Publishing
Disks & Data Cartridges
Education
Fonts
Games
Graphics & Design
Hardware
Illustration
Integrated

Lan Zone
MIDI & Sound
Monitors/Video Cards
Multimedia
Personal Productivity
PowerBook Accessories
PowerBook Utilities
Printers
Presenting Your Ideas
Scanners/OCR
SIMMs
Spreadsheets
Storage Drives
System 7
Utilities
Word Processing

⊗ = System 7 compatible
✓ = Money Back Guarantee

Policies

- All major credit cards accepted. No surcharge.
- Your credit card is not charged until your order is shipped. If we must ship a partial order, freight is not charged on back order. (USA only)
- Most personal and company checks received by mail will clear immediately. All checks or purchase orders must have a phone number and contact person listed in order to be processed.
- C.O.D. orders are accepted: Limit \$1,000 per order. Cashier's check or money order only. Add \$5.00 per C.O.D. order.
- Educational, government and corporate purchase orders accepted.
- All U.S. shipments insured at no extra charge.
- No sales tax, except WA and OH residents. (Please add applicable tax.)
- Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. Call for current prices.
- All products covered by a 120 day limited warranty.
- Shipping is \$3 per order for delivery in the USA. We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery.)
- Orders place by 2 am ET weekdays for in stock items will ship that day for overnight delivery (barring system failure, etc.)
- APO/FPO box orders are shipped first class U.S. Mail. Shipments to P.O. Boxes are via UPS.
- Not responsible for typographical errors.
- Defective software will be replaced immediately, and hardware will be repaired or replaced at our discretion.
- A Return Authorization Number is required for any product returned. Please call Customer Service, 1-800-248-9948, weekdays from 6 am to 6 pm PT, 9 am to 9 pm ET. Sat. 10-2
- © 1992 Multiple Zones International

CODE #21202

Multiple Zones International

17411 NE Union Hill Road • Redmond, WA 98052-6716

International: 206-883-3088 • FAX: 206-881-3421



OVER 2,400 PRODUCTS IN STOCK

20 1.4 MB Disks For \$20 Bucks... While They Last

4 Reasons To Buy Disks

- 1. FC Lifter**
Fuji's newly developed FC (Firm Contact) lifter helps to maintain optimum contact between the liner and the disk surface for safer and more efficient removal of dust.
- 2. Special Liner Material**
A unique unwoven cloth liner material is used to more effectively trap tiny foreign particles for greater protection against the damaging effects of dust.
- 3. Double-Rib Liner Support**
Double-Rib Liner Support means you get improved contact between the magnetic surface and the liner. This provides a more effective, long-term cleaning action.
- 4. Proven Durability, Even Under Dusty Conditions**
To ensure maximum durability under today's demanding conditions, Fuji tests their disks in special dust rooms that replicate real-world environments.



\$20 with Rebate

Fuji DS/HD Unformatted 1.4MB 20Pk. with \$4 Rebate

Now, for a limited time, purchase a 20 pack of premium-quality Fuji DS/HD unformatted 1.4MB disks and receive a coupon for a \$4 rebate. That means you pay only \$20 for 20 disks—just a buck a disk! But order early, because once they're gone... they're gone. Fuji #05820

Fuji Floppy Disks-Formatted

- #05703 MF2DD Fuji DS/DD Formatted 800K 10Pk. \$9
- #05708 MF2HD Fuji DS/HD Formatted 1.4Mb 10Pk. \$14



Fuji Floppy Disks-Unformatted

- #05704 MF2DD Fuji DS/DD Unformatted 800K 10Pk. \$9
- #05709 MF2HD Fuji DS/HD Unformatted 1.4MB 10Pk. \$14
- #05706 MF2DD Fuji DS/DD Unformatted 800K 10Pk. Colored Plastic \$9
- #05710 MF2HD Fuji DS/HD Unformatted 1.4MB 10Pk. Colored Plastic \$15



Fuji Floppy Disks-Bulk Packs

- #05711 MF2HD Fuji DS/HD Unformatted 1.4MB 50Pk. \$58
- #05707 MF2DD Fuji DS/DD Unformatted 800K 100Pk. \$68
- #05816 MF2HD Fuji DS/HD Unformatted 1.4MB 100Pk. \$128

Fuji Data Cartridges

Try Advanced Technology On For Size-

Fuji Data Cartridges produce reliable results. While most data systems have an error-correction function, it's better to minimize errors from the beginning. To reduce the spacing loss that causes errors, Fuji uses an extremely smooth base film and a super-calendering technology that results in a remarkably low error rate. Super-calendering technology is just one of the reasons why Fuji disks are recognized world-wide as one of the leaders in the portable storage media industry.

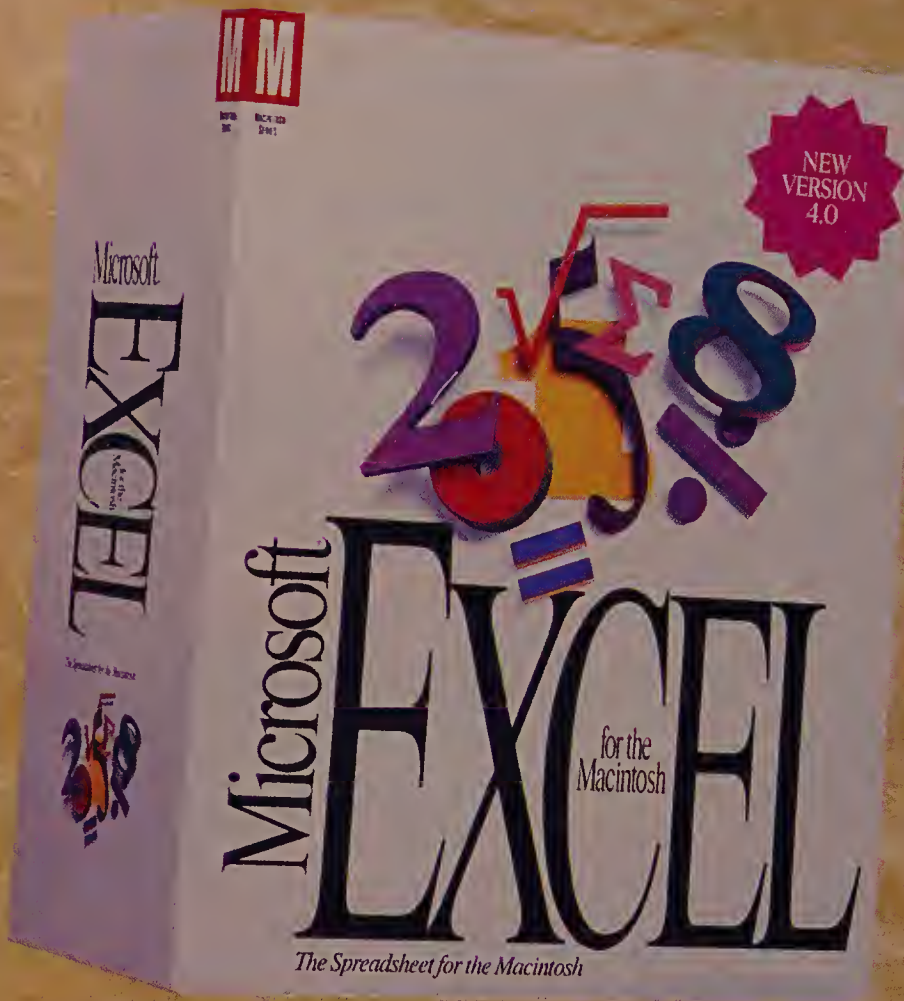
- #05712 Fuji DC2000 1/4" 40MB Data Cartridge \$16
- #05713 Fuji DC6150 1/4" 60MB Data Cartridge \$22
- #05714 Fuji DC2120 1/4" 120MB Data Cartridge \$23
- #05715 Fuji DC600A 1/4" 150MB Data Cartridge \$20
- #05716 Fuji DG60M 4mm Data Grade Tape 1.3GB .. \$14
- #05717 Fuji DG90M 4mm Data Grade Tape 1.95GB \$19
- #05718 Fuji QG112M 8mm Data Grade Tape 2.5GB \$13



Excel 4.0 • Don't Do Business Without it

**VERSION
UPGRADE**

\$98



The most popular spreadsheet among Macintosh users delivers on the promise of power made easy! Thanks to the new Toolbar, you can perform charting, formatting and analytical functions in a single step!

Microsoft Excel 4.0

Excel Version 4.0 is here! The number-one selling spreadsheet for the Macintosh now gives you more power and makes everyday spreadsheet tasks easier than ever before. Microsoft Excel version 4.0 for the Mac gives you the features you need anytime, anywhere.

Just look at some of the new features Microsoft Excel 4.0 offers:

- New customizable toolbars give you instant access to the right set of tools for your work.
- Autosum™ lets you automatically sum rows of numbers with a click on the toolbar.
- Wizards are interactive outline tutorials that walk you through tasks, including chart creation, to give you instant access to the most common options.
- Autofill recognizes trends in your data and intelligently extends them as far as you'd like.
- Drag and Drop lets you quickly move data with your mouse from one area of your spreadsheet to another.
- Best Fit automatically re-sizes column widths to fit the longest string of text or numbers.

Plus, you get all the traditional Excel tools you've come to expect and rely on:

- Scenario Manager lets you change multiple assumptions to examine different scenarios of the same model and review a summary of these multiple scenarios.
- Analysis ToolPak includes the most extensive financial, statistical, engineering and scientific functions of any spreadsheet, including ANOVA, regressions, histograms, Bessel functions and many more.
- Crosstabs lets you easily create reports from your databases. A Crosstab Report Wizard helps automate the creation of these reports so you can understand relationships in your data.
- Workbooks lets you group and store related files together, which makes it easy for you to retrieve all of your related worksheets.
- Data Consolidation enables you to combine data from an unlimited number of worksheets into a summary report.
- Outlining allows you to look at your worksheet in any level of detail.

Now, The Mac Zone makes it easy to move up to the unprecedented new power and ease that Microsoft Excel version 4.0 offers you. Simply mail or fax us page 1 of your Microsoft Excel User's Guide or disk 1 of Microsoft Excel for the Mac and you can upgrade to Microsoft Excel version 4.0 today! Then you'll see for yourself just how easy power can be.

Microsoft #04545 ✓✓

Microsoft®

LEARN

Excel!

Personal Training System Tutorials—

Only
\$48



\$294

Microsoft Excel 4.0

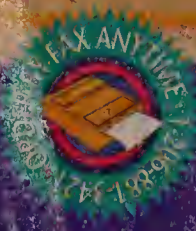
You've been hearing about it for years. Now take the next step and become an Excel user yourself. You'll enjoy all the ease of use and power that have made Microsoft Excel the leading spreadsheet for the Mac. Our Mac sales advisors are standing by. Microsoft #00227

When you purchase Excel 4.0 and *Using Excel 4.0* (#05049) receive the book for only \$19

Regular price of book #05498 *Using Excel 4.0* \$24



FAX YOUR ORDER ANYTIME : 1-206-881-3421



Microsoft Word 5.0: The Word Processor That Helps You Get Down To Business

Microsoft Word 5.0 Upgrade

To make Word the best it can be, Microsoft has been listening to their users. And in response to user requests, they have produced the best version of Word ever, the all-new version 5.0.

You told Microsoft you wanted easy ways to do the most common tasks. That's why they've provided new tools that make it incredibly easy to apply the full power of Word version 5.0 to the chores you do every day. For example, the Ribbon provides on-screen buttons that reduce even complex chores to a simple point and click. So adjusting formatting, changing the number of columns, or even starting a drawing is as easy as pressing a button.

A variety of other useful tools offer even more ways to make routine jobs simple. Find File locates any files quickly using keywords, author, or even date of creation, then lets you view file contents without opening them. And for those who've been asking for practical help with their prose, they've built in a grammar checker that automatically checks grammar and sentence style. Special upgrade price requires proof of ownership of an earlier version of Word.

Simple To Learn and Use

- An intuitive interface makes it easy for beginners to learn and for experts to use.
- Use the Ribbon and Ruler to perform common tasks with a single mouse click.
- Move words, sentences or whole paragraphs easily by dragging and dropping text from one place to another using your mouse.
- Improve your spelling with the spelling checker's automatic suggestions—it even corrects your document's punctuation, phonetics and repeated words.

Helps You Look Your best

- Add graphics and special formatting with the built-in drawing tools.
- Format text in multiple columns with a single click of the mouse.
- Use tables to breeze through lists, forms, variable-width columns and captions.

Create Long Documents With Ease

- Use the full-featured equation editor to build and automatically format complex mathematical equations.
- Use Word's outliner to plan your document and rearrange it automatically.
- Make short work of long documents with tools for automatically creating and handling tables of contents, indexes and more.

Set It Up To Work the Way You Do

- Customize menus, commands and more.
- Set all your preferences in one easy-to-use dialog box.

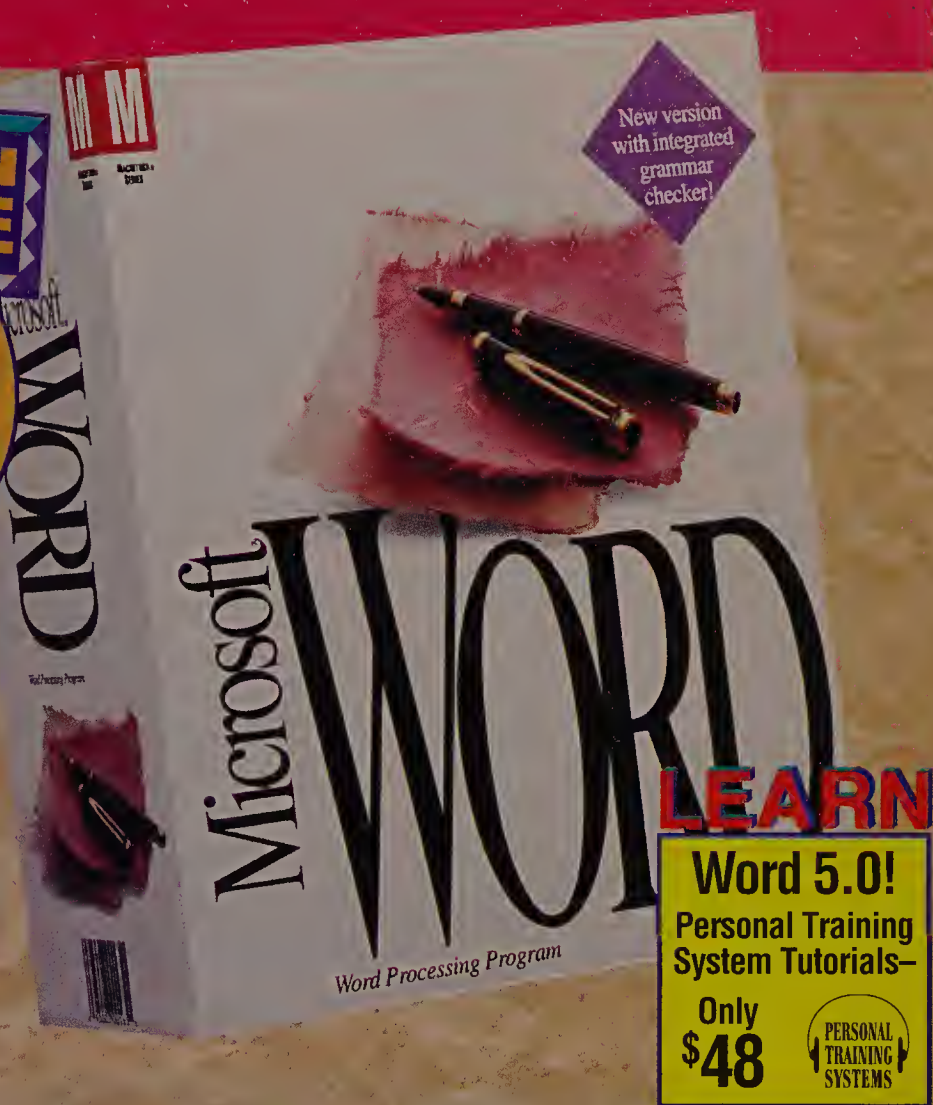
Get Down To Business

- Build powerful business solutions for using Microsoft Word with Microsoft Excel, Microsoft Project and Microsoft PowerPoint.
- Simplify training and support with easy file exchange between all members of the Microsoft Word family—Microsoft Word for the Apple Macintosh, Microsoft Word for Windows and Microsoft Word for DOS.

Microsoft #00596

**VERSION
UPGRADE**

\$124



When you purchase Word 5.0 and *Using Word 5.0* (#05233) receive the book for only \$19
Regular price of book #05133 *Using Word 5.0* \$24

Microsoft Word 5.0

\$294

Microsoft Word provides depth of function and ease-of-use like no other word processor on the market today. The all new version 5.0 makes it even easier than ever to apply the full power of Word to the chores you do every day. New on-screen buttons reduce even complex chores to a simple point and click, so now you can adjust format, change your number of columns or even start a drawing at the click of a mouse! Other handy new features include a file finder and a built-in grammar checker. Microsoft #04898

Some of Microsoft Word's useful features include:

- Built-in grammar checker, spelling checker and thesaurus
- Built-in drawing tools
- Equation Editor for easy creation and formatting of equations
- Full placing and wrapping options
- Print Merge Helper for generating form letters and labels
- Drop and Drag features make page formatting and layout a snap

LetterWorks \$44

Save time and increase the effectiveness of your written materials with LetterWorks' 400 customizable letters and memos. They cover all aspects of business. Saves you countless hours of composing and typing! Round Lake Publishing #05052 ✓✓✓✓

SALES LetterWorks\$44

SALES LetterWorks gives you 300 powerful letters that cover every aspect of sales. Plus you get proposals, faxes and more. Round Lake Publishing #05054 ✓✓

LEGAL LetterWorks\$44

LEGAL LetterWorks contains 165 legal forms for business and personal use. Includes wills, real estate, corporate forms and more. Round Lake Publishing #05055 ✓✓

PROFESSIONAL LetterWorks\$51

PROFESSIONAL LetterWorks—Market your professional practice with 250 forms. Includes press releases, ads, questionnaires and more. Round Lake Publishing #05053 ✓✓

PERSONNEL ReadyWorks\$64

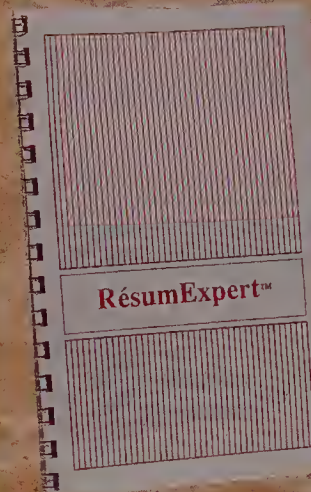
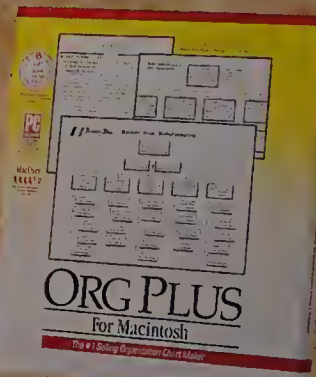
PERSONNEL ReadyWorks contains 160 customizable forms: hiring, performance appraisals, benefits, termination and more. Round Lake Publishing #05737 ✓✓



Org Plus for Mac 1.0

\$124

Why hire a graphic artist to hand-draw your organizational charts when you can create professional-looking org charts quickly and easily with Org Plus for the Mac 1.0. Simply type names, titles and other text into each box. Org Plus automatically adjusts the boxes to fit your text. You can add, delete or move boxes or entire departments—and Org Plus does all the redrawing! You'll choose from more than 50 different chart, box and line styles. Banner Blue Software #04806 ✓✓



RésuméExpert™

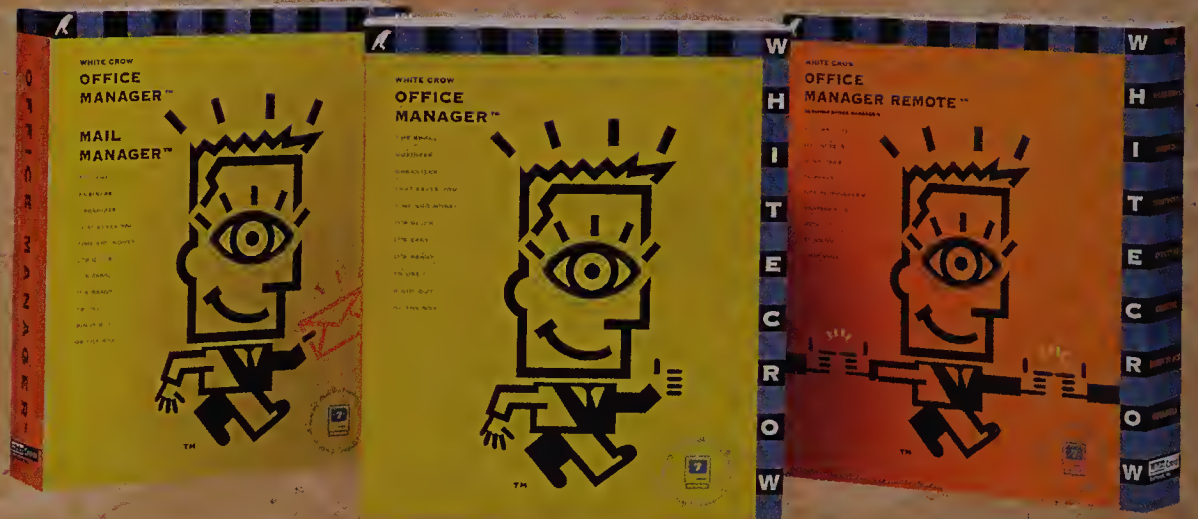
\$47

Get an edge on the competition and land the job you want! RésuméExpert™ helps you make your resume more eye-catching and effective. Choose from 42 templates to redesign your resume for a more professional self presentation. The templates cover a wide variety of fields within both typical and unusual career categories. A Lasting Impression #03103 ✓

Get Your Office Organized With White Crow

Office Manager 2.1 \$74

Manage your small business with one software package! At a time when most office software is getting more complicated, along comes White Crow Office Manager, an incredibly easy-to-use productivity program designed especially for small businesses! Office Manager maintains addresses, writes letters, prints envelopes and labels, keeps a to-do list and tracks client jobs. The optional Mail Manager module allows you to easily set up programmed mailings to your customers and includes a utility for weeding out duplicate names. Another option called Office Manager Remote allows you to share Office Manager's address files on other Macs, even if they aren't networked! Addresses can be entered on any machine, then the address files are periodically merged using a floppy disk! Perfect for the Mac PowerBook. System 7 compatible. White Crow Software #05324 ✓✓



Office Manager Remote 2.1

\$58

With this add-on addition to Office Manager you can use your address file on other Macs *without* being on a network. Add new addresses on any computer, then you can periodically merge all address files using a floppy disk copy of Office Manager. This is an ideal mail management system for the Macintosh PowerBook. Office Manager Remote requires Office Manager. White Crow Software #05325 ✓✓

Office Manager w/ Mail Merge \$108

Simplify your mail sorting and fine-tune your mail delivery. Mail merge gives Office Manager expanded sorting capabilities plus date & quantity sensitivity when printing mailing labels or merge letters. It will prevent the same person from receiving the same mailing twice, or will send repeat mailings at predetermined intervals. Ideal for newsletters or other repetitive mailings. White Crow Software #05326 ✓✓



WE SHIP WORLDWIDE! CALL 1-206-883-3088

WordPerfect 2.1 \$278

Using System 7's Publish and Subscribe, WordPerfect will automatically keep track of changes that you (or someone else) make to imported files and it will automatically update your WP documents accordingly. WordPerfect 2.1 also gives you full placement of graphics in your text and a color drawing program for modifying imported artwork without ever leaving the program. You also get QuickTime compatibility and more.

WordPerfect Corporation #03972 ✓
#05738 ✓ LetterPerfect \$94



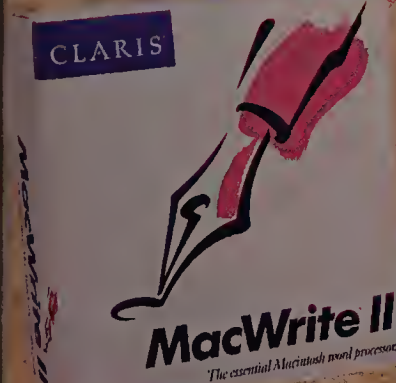
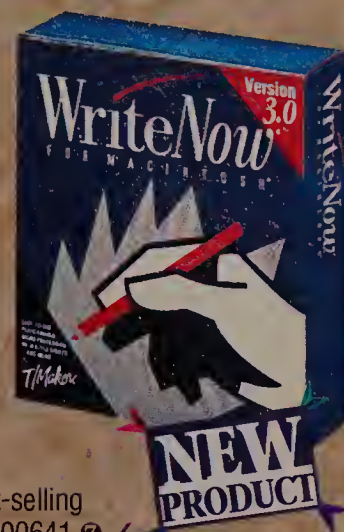
When you purchase WordPerfect 2.1 and Using WordPerfect 2.1 (#05234) receive the book for only \$19
Regular price of book #05109 Using WordPerfect 2.1 \$24

**COMPETITIVE
UPGRADE**
\$68
#05691

\$148

WriteNow 3.0

A two-time winner of MacUser's "Best New Word Processor" award, WriteNow 3.0 is one of the fastest word processors for the Mac. WriteNow 3.0 includes a lightning-fast 135,000-word spelling checker, a 1.4 million-word thesaurus DA, Microsoft Word compatibility and a FREE full version of GrammatikMac 2.0, the best-selling grammar/style checker (a \$40 value!). T/Maker #00641 ✓

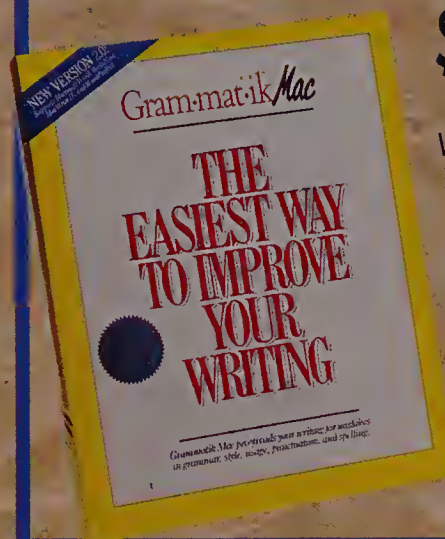


\$88

Claris MacWrite II

Get the job done faster, with better results. MacWrite II® software gives you all the tools you need for a wide range of writing tasks, from simple memos and reports to sophisticated business proposals, multi-column newsletters and 1,000-page manuscripts. Check your spelling with the built-in 100,000-word dictionary. Or find just the right word with the 220,000-

word desk-accessory thesaurus. Read, edit or insert files created in other word processors like MS Word or WriteNow. Open a file in MacWrite II and start typing—then save it back to its original format. Claris #04703 ✓



\$41

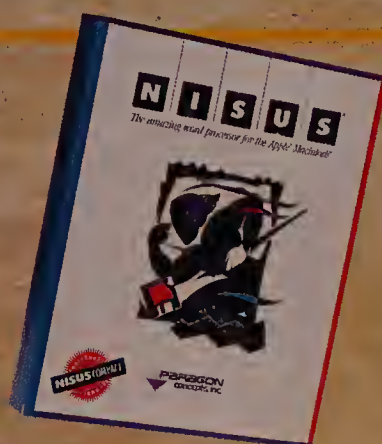
Grammatik Mac 2.0

With over 1.5 million users, Grammatik Mac is one of the most popular grammar utilities available. It helps you write clear, concise, persuasive reports, letters, manuscripts, etc. Grammatik Mac 2.0 finds thousands of errors and gives you instant, complete advice. Customizable modules allow you to choose your writing style, add your own rules and help screens and much more! Reference Software #03143 ✓

NISUS Compact \$91

Conserve precious RAM on your PowerBook with NISUS Compact, the powerful and efficient word processor which runs in less than 400k! Some of NISUS's many features include: Fuzzy Find (finds files by entering approximate, sound-alike file names); Write with the freedom to undo all your mistakes, saved or not, all the way back to the opening document; and much more. Fully compatible with the full version of NISUS. NISUS Software #00999

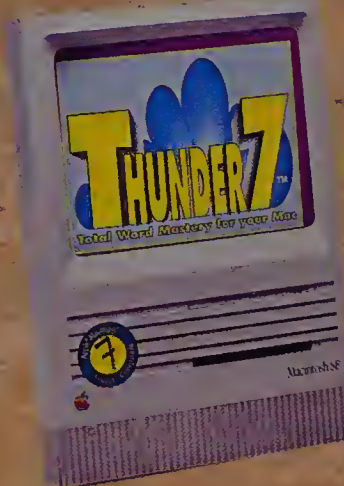
#03479 NISUS 3.06 \$237
#01473 Qued IM \$74



Thunder 7

\$54

Thunder 7 delivers benefits well beyond your word processor's onboard spelling checker or thesaurus. Thunder 7 will interactively indicate each spelling or punctuation error you make, as you make it. Using Thunder 7, you can batch check and expand your creativity with the integrated thesaurus. With Thunder 7's glossary, you can automatically correct your most frequently misspelled words or expand your creativity with the integrated thesaurus. Baseline Publishing #03941



\$54

Sensible Grammar 2.1

Grammar check your document without leaving your word processor. Sensible Grammar includes nine user-selectable writing styles and checks for grammar and punctuation errors. Version 2.1 (with System 7 or MultiFinder) lets you check the whole document, or only the parts you select. Perfect for PageMaker. Sensible Software #00483 ✓



\$24

FaxMania

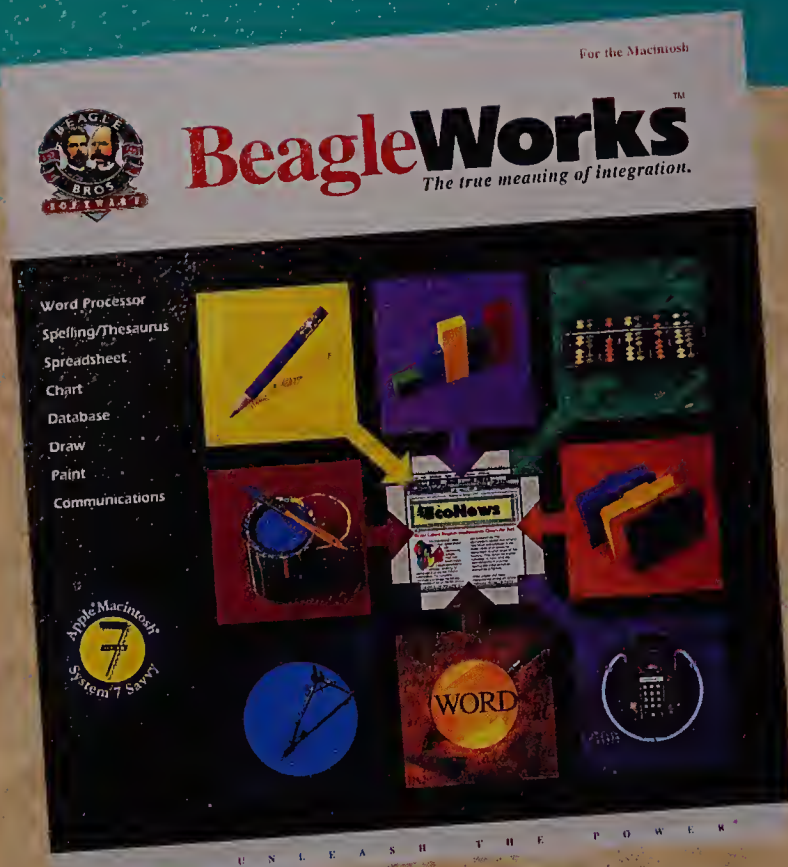
What kind of "FAX MOOD" are you in? FaxMania includes 80 business fax cover sheet templates that you can personalize and use right out of the box. Simply:

- Choose the template you want
- Type in the "to" and "from" information and your message
- Send via fax modem or print and insert into a standard fax machine

T/Maker #05063

INTEGRATED

Available Now!



\$184

BeagleWORKS

This award-winning software sets new standards for the term "integration." BeagleWORKS combines a full-function word processor (complete with spelling checker and thesaurus), a spreadsheet, a charting program, a database, a painting program, a drawing program and communications modules into one harmonious package. This truly integrated program, lets you combine data from all other modules into a single document and makes changes (edit in context), all without leaving your document! Beagle Bros Software #04327 7 ✓



BeagleWORKS Competitive Upgrade

Switch to BeagleWORKS and save! To qualify for the BeagleWORKS upgrade offer, your order must include the first page of your user manual from any one of the following products: AppleWorks 3.0, AppleWorks GS, Microsoft Works, Desk, Ragtime, GreatWorks or Claris Works.

Once you have your new BeagleWORKS, send in a copy of the front cover of your manual with the Beagle Brothers registration card and you'll become a registered owner, eligible for updates and technical support.

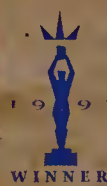
Beagle Bros Software #04583 7 ✓

\$94

COMPETITIVE
UPGRADE

\$94

#04651

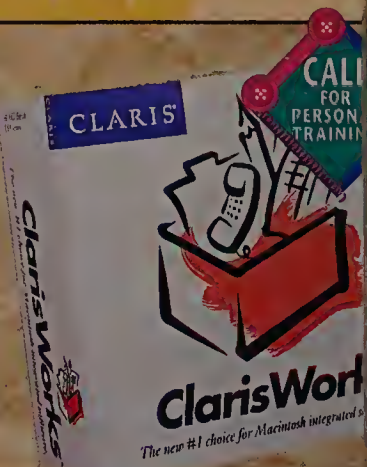


FREE
QUICKEN
4.0

ClarisWorks

\$196

Increase your office productivity. With ClarisWorks you can easily create professional-looking documents that combine colorful graphics with a variety of page layout options, including multiple columns and linked text frames. ClarisWorks features interactive environments which provide seamless integration of tools. FREE Quicken 4.0 with 1/93. Not available with Competitive Upgrade. Claris #04466



NEW
VERSION

\$158

Microsoft Works 3.0

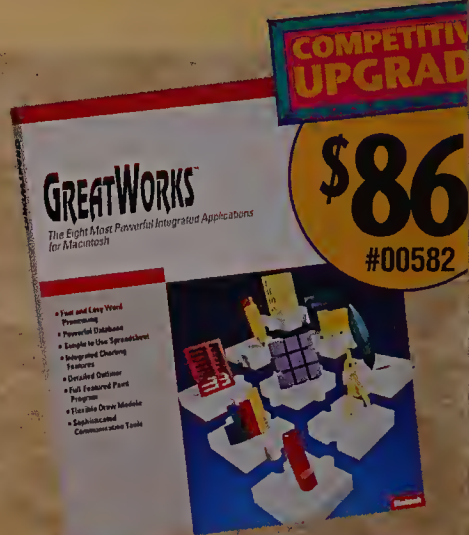
Get five of the most popular productivity tools in one versatile, affordable software product. Microsoft Works is one of the best software values available today for someone with varied computing needs. The Works package includes: Word processing with spelling checker and mail merge; Database with reporting; Spreadsheet with charting; and much more. Microsoft #00567



\$198

GreatWorks 2.0

Any owner of Microsoft Works, ClarisWorks, Ragtime or AppleWorks can now cross over to the versatility and power of GreatWorks at an attractive competitive upgrade price. Requires proof of ownership of competing software product. Symantec #00458 7 ✓



WordPerfect
OFFICE
Office Automation Software
for Macintosh Computers
and Networks

1
PACK



WordPerfect Office

\$88

WordPerfect Office™ for the Macintosh® is a collection of office automation programs for Macintosh networks. Some of Office's amenities include mail, calendar, notebook, file manager and forms maker. These desk accessories allow you to send electronic mail, schedule events and resources for people on the network, create databases

and organize your desktop. You'll soon wonder how you survived without it! WordPerfect #04170 7 ✓



ORDER BY 2 A.M. WEEKDAYS FOR NEXT DAY DELIVERY

Claris **\$267** FileMaker Pro 2.0

Take control of your computer files with FileMaker Pro, the extended flat file manager that makes file management easy. Its look-up function lets you extract information from other files. A host of graphical tools gives you access to powerful layout and organization features, making your reports and forms more appealing. With customizable scripts and buttons, you don't have to understand advanced database concepts to use it. And as your needs grow, FileMaker Pro can grow right along with you, into a comprehensive, file-sharing, workgroup environment. Claris #03478 7 ✓

**COMPETITIVE
UPGRADE**

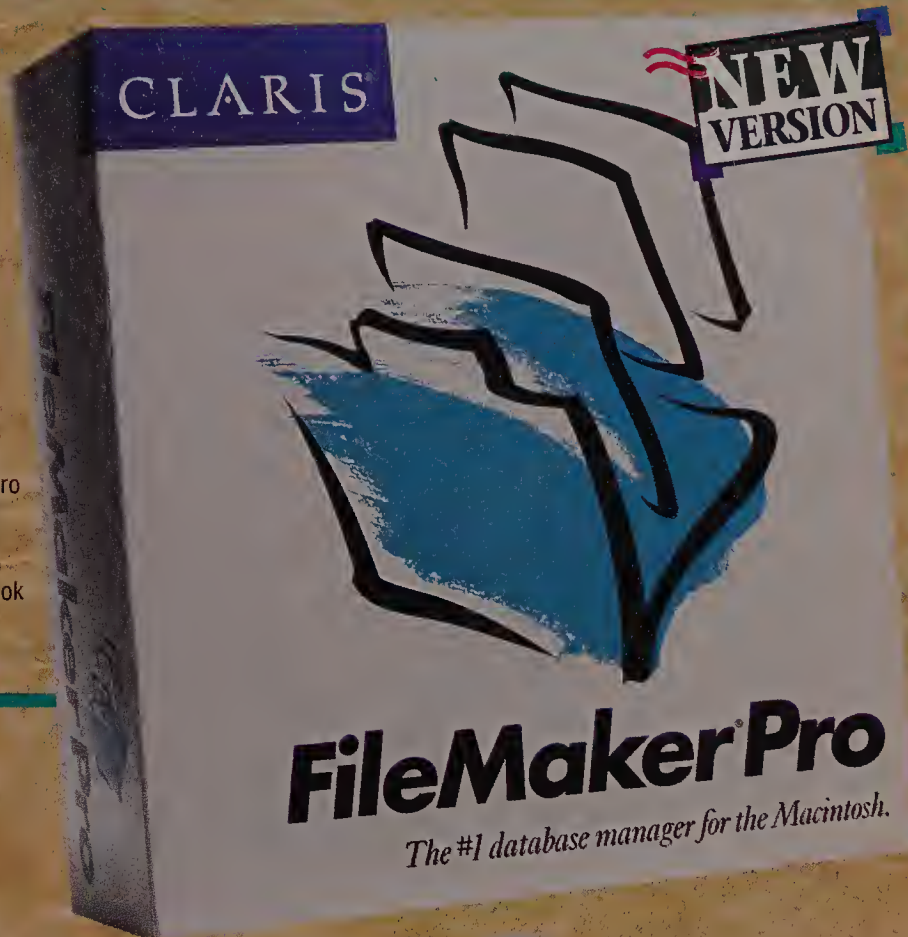
\$108

FileMaker Pro 2.0
Competitive Upgrade
#05032

**SAVE
\$5
ON THIS BOOK**

When you purchase FileMaker Pro and Using FileMaker Pro (#05237) receive the book for only \$19.

Regular price of book (#05131) Using FileMaker Pro \$24.



FileMaker Pro

The #1 database manager for the Macintosh.

The Macintosh Bible Guide to FileMaker Pro

Mac Bible Guide To FileMaker Pro **\$11**

No FileMaker reference guide covers FileMaker like the Mac Bible Guide To FileMaker Pro. This comprehensive guide presents information in an easy-to-read and systematic format. It's virtually the only book written for both database experts and the average FileMaker user. Goldstein & Blair #04093

Pro-Cite 2.0 **\$194**

Pro-Cite is a powerful database program that saves you hours by enabling you to manage and format bibliographic and text information automatically. New features include instant searching, expanded word processing support and increased record capacity.

Personal Bibliographic Software #04532
#04266 Pro-Search \$148



Helix Express **\$298**

Helix Express provides ready-to-go solutions in every box that help you manage everything from personal contacts and all the information you need to stay competitive. The multiuser software in every box allows your users to access the same information, with immediate updating. Document features allow you to store and retrieve documents right in the database and launch documents in their native applications. It's non-procedural and object-oriented—no programming language required! Helix Technologies #05677



\$508 4th Dimension 2.2

4th Dimension is a high-end database designed for intermediate and power users. It provides depth of function and sophisticated data manipulation like nothing else on the market. Acius #02648 7 ✓

#03973 4th Dimension Write \$228
#00411 4th Dimension Calc \$224
#03330 File Force \$198

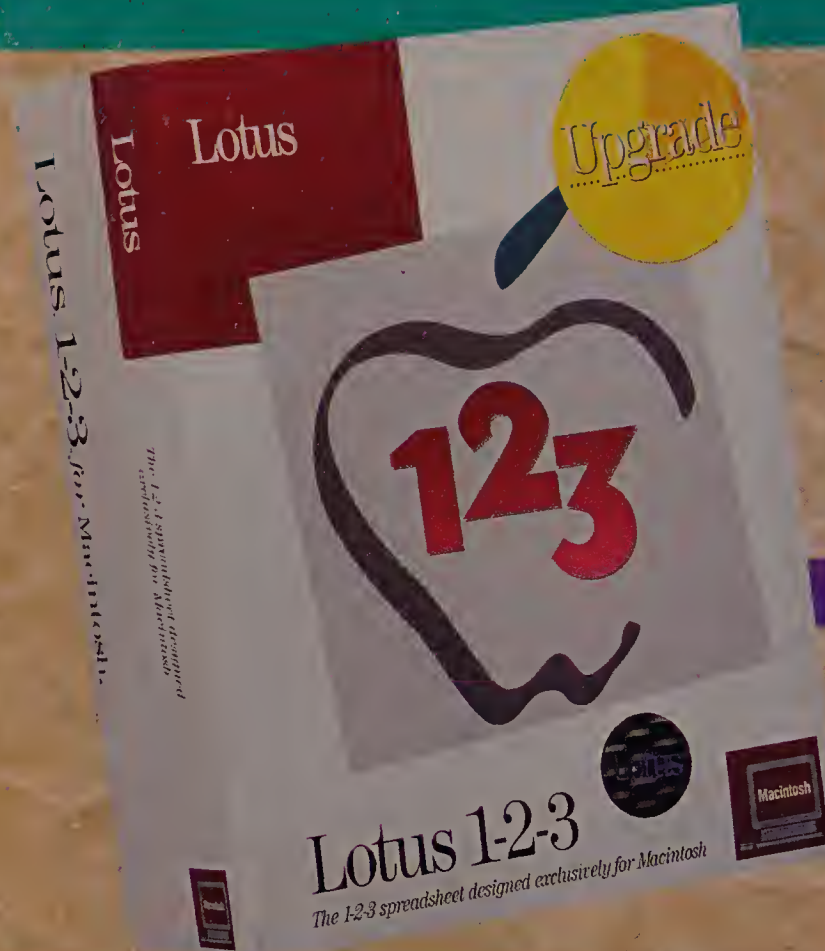
Microsoft **\$288** FoxBASE+/Mac 2.01

In a comparison test against competing database management systems, Microsoft FoxBase+ 2.01 accessed data up to 200 times faster. Its versatility and features offer powerful relational capabilities and a sophisticated programming environment. Microsoft #02581

#02163 FoxBASE+/Mac Runtime 2.01 \$178
#02582 FoxBASE+/Mac 2.01 6Pk. \$398



Lotus 1-2-3 for Macintosh



**COMPETITIVE
UPGRADE**

\$94

#00518

Now the Mac Zone makes it easy to switch to Lotus 1-2-3 for the Mac.

Upgrade from a competing spreadsheet product and we'll ship you Lotus 1-2-3 for this super-low competitive upgrade price.*

*Competitive upgrade price requires proof of ownership competing spreadsheet software product.

Lotus 1-2-3: What's in it for you?

• **Designed exclusively for Macintosh from the word go.**

At last, there's a spreadsheet that exploits the capabilities of the Apple Macintosh to their fullest, especially under System 7. The spreadsheet functions you use most often are all just a mouse click away—whether you need to edit cells, enter formulas or create graphs. Customize your spreadsheet and desktop with tear-off menus and floating toolboxes. Move them anywhere. Then just click to close them so they're out of your way. Lotus #00518

• **More powerful than a locomotive.**

Lotus 1-2-3's true 3D worksheet management lets you tackle complex tasks, like consolidations, with complicated linking or dialog boxes. Bring remote data right into Lotus 1-2-3 through DataLens and the Apple Data Access Language. Then work with it using full relational database power and custom database forms. No matter what you're doing, you'll see only one set of menus, tools and file formats. You'll get so much done with so little to learn.

• **Complete Excel and PC compatibility.**

Yes. You heard right. 1-2-3 for Macintosh directly reads and writes Microsoft Excel for Macintosh files. So you can make the switch to 1-2-3 and never look back. What's more, 1-2-3 for Macintosh is fully compatible with all 1-2-3 files and macros, including PC versions. More than fourteen million people already rely on Lotus 1-2-3 for accounting, budgeting, forecasting, analysis, proposals, presentations and much more. Now Mac lovers can, too.

Lotus 1-2-3 features at a glance:

Mac Savvy Features:

- Floating toolboxes and palettes for custom workspace
- Full System 7 support
- In-cell editing
- Context-sensitive, graphical help
- Select ranges before or after starting commands
- Includes 256 supported colors/49 fill patterns/230 line styles and thicknesses

Powerful Spreadsheet Features:

- True 3D worksheets
- Pop-up functions and range names
- Menu promotion
- Same menus, tools and file formats across worksheets, graphs and macros
- Adobe Type Manager included
- Automatic compression on all printers
- Macro recorder always active
- Customizable database forms
- Relational joins and queries
- Directly reads FoxBASE and dBASE files (.DBF)

Compatibility Features:

- Reads and writes all 1-2-3 files
- Runs all 1-2-3 macros without translation
- Reads and writes Excel files
- 1-2-3 Classic menu provides keystroke compatibility

Powerbook Sweepstakes Information

Official Rules

To enter: Simply send us a postcard! PowerBook Sweepstakes, 17411 NE Union Hill Rd., Redmond, Washington 98052-6716. • Entrants must be 18 or older to be eligible • Offer valid in the United States only. • **NO PURCHASE NECESSARY.** • One entry per person. • Prizes awarded by random drawing on 1/10/93. • Winners are responsible for all applicable taxes. • No substitutions will be made for any prizes except at the option of the sponsor for prizes of equal or greater value. Prizes may not be transferred nor will cash substitutes be offered. • This offer is not open to employees of Lotus, Mac Zone or any other person or organization responsible for this promotion. • Late, lost, illegible, misdirected or incomplete entries are ineligible. • Odds of winning depend on number of entries received; One prize will be awarded. • Winners consent to the use, without compensation, of their name, address and likeness in promotional and advertising material related to the sweepstakes. • Winners must execute an affidavit of eligibility and release or prize may be forfeited. • Offer void where prohibited by law. • To obtain a list of winners, send a written request with a self-addressed stamped envelope to PowerBook Sweepstakes, 17411 NE Union Hill Rd., Redmond, Washington 98052-6716. • **Good luck!**



FAX YOUR ORDER ANYTIME: 1-206-881-3411

Integrate Sound & Graphics

Claris Resolve Competitive Upgrade

COMPETITIVE
UPGRADE
\$94
#00699

Whether you're simply tracking expenses or creating sophisticated business models, Claris Resolve gives you the analytical tools you need to make informed financial decisions. Present your final analysis with integrated graphics and text for expressive, persuasive reports. Resolve gets you noticed! It comes in the same powerful and easy-to-use format you've come to expect from Claris. Upgrade now from a competing software product (Excel, Lotus 1-2-3, WingZ or Full Impact) and take advantage of the special upgrade price.

Hot Claris Resolve Tip

- Import graphics created in MacDraw Pro to jazz up your charts and financial presentations

Claris Resolve

\$168

...the spreadsheet that gets you and your ideas noticed.

Even if you've never used a spreadsheet before, Claris Resolve can help you create impressive financial reports or build sophisticated business models quickly and easily.

For starters, there are menu-driven analytical functions to simplify number-crunching tasks like calculating and model building. And there are tools to let you create graphics and 3D charts. You can also scan images and import text to build documents that present your information clearly and concisely. You can even use the familiar MacDraw-like tools to zoom in on a small detail, or zoom out to see the big picture.

And Resolve has been written specifically to take advantage of the powerful features of Apple System 7, such as Balloon Help, Publish & Subscribe and Apple Events. Claris #04306

Features:

- Visualize your results with 25 full-featured chart types
- Integrate numbers, text, graphics and sound to create persuasive reports
- Create HyperCard-like buttons and automate routine

CLARIS

Claris Resolve
The Macintosh spreadsheet for visible results

business tasks with Resolve Script

- Utilize complete support for Apple System 7 to tap into the power of Resolve from within other applications
- Enjoy full support of built-in Claris technologies including context-sensitive online Help and a customizable 110,000-word spell checker you can use with other Claris applications
- Suggested retail price \$399

CALL
FOR
PERSONAL
TRAINING

25% OFF
NEW VERSION 4.0
Microsoft Excel
VERSION 4.0
UPGRADE
\$98
#04545

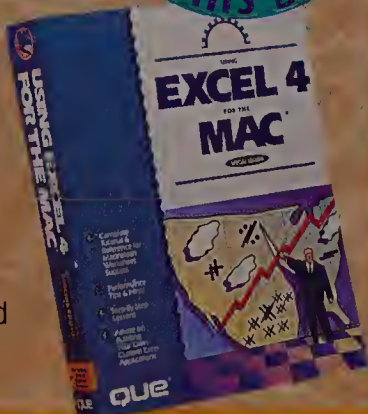
\$294
Microsoft Excel 4.0

The leading spreadsheet for the Macintosh just got even better. Microsoft Excel version 4.0 for the Apple Macintosh was designed with you in mind. It gives you access to more powerful features and makes everyday spreadsheet tasks easier than you ever dreamed possible. Microsoft #00227

SAVE
Special Book/Software Bundle
\$313
#05049
ON THIS BOOK

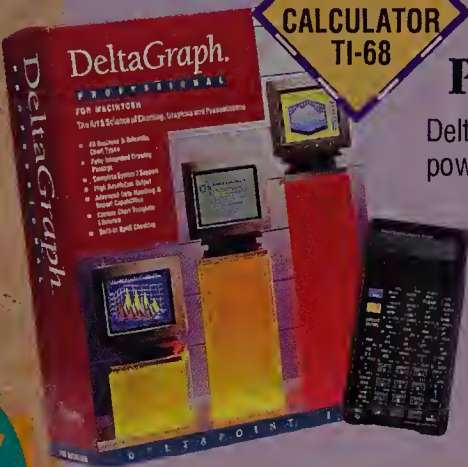
Using Excel 4.0 for the Mac-Special Edition \$24

Increase your business potential! Unlock the full power of Microsoft Excel 4.0. *Using Excel 4.0 for the Mac-Special Edition* provides an outstanding combination of tutorial-style lessons and reference materials specifically selected and designed to help you create the most effective worksheets possible—right away! Quick Start tutorials show you easy ways to design, enter and edit worksheets and charts that increase your financial effectiveness. Prentice Hall #05498


FREE
CALCULATOR
TI-68

Deltagraph Professional \$198

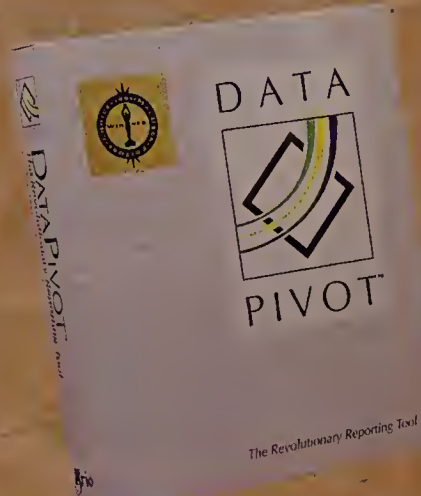
Deltagraph Professional is one of the most powerful tools available for designing dynamic and memorable charts for your business and presentation needs. Every aspect of your charts and presentations is under your control: formatting options, built-in custom chart templates, a complete set of integrated drawing tools, text outlining, bullet charts and more. Import/export clip art and graphics. DeltaPoint #04805 ✓



DataPivot \$226

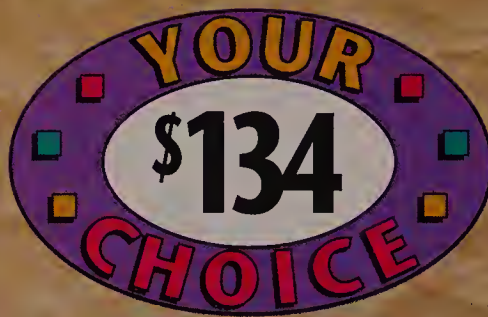
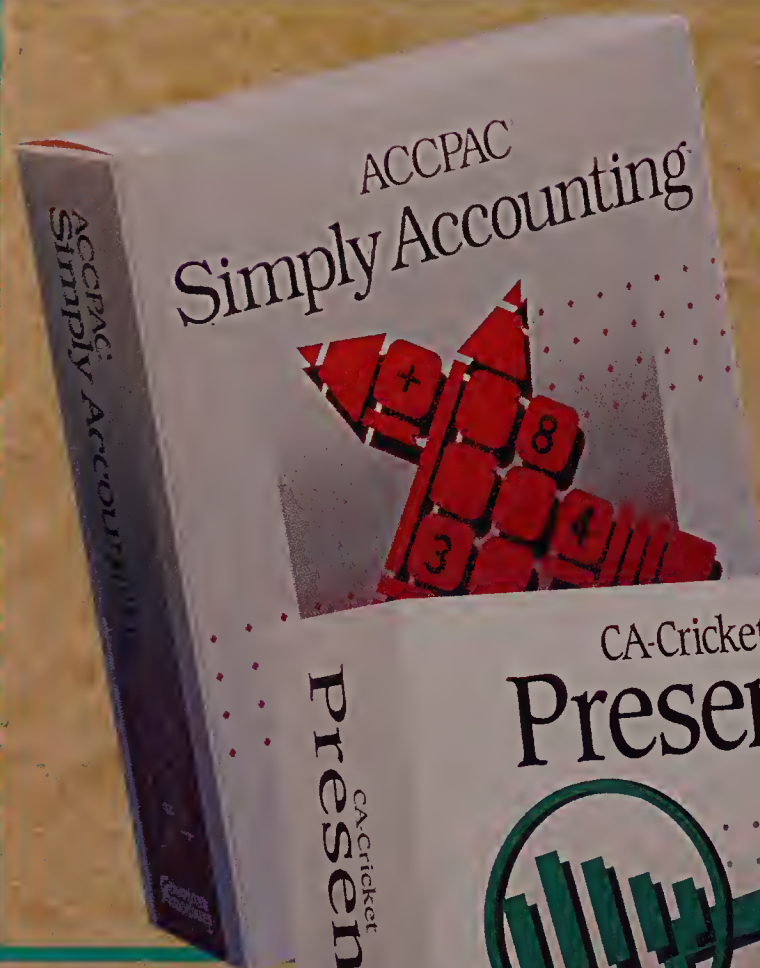
DataPivot is a dramatic new report builder with a twist. Its dynamic data "frame" allows you to interchange rows and columns, define groups, totals and sub-totals, and build reusable templates that reveal the structure and meaning of your data. DataPivot supports System 7.0 (Publish and Subscribe) IAC and DDE and accepts data from virtually any source. Brio Technology #05057 ✓

#05058 DataPrism \$306


The Mac Zone
Established 1986

CALL 1-800-248-0800
OPEN 24 HOURS
EVERY DAY

Get The Job Done With Powerful Business Tools



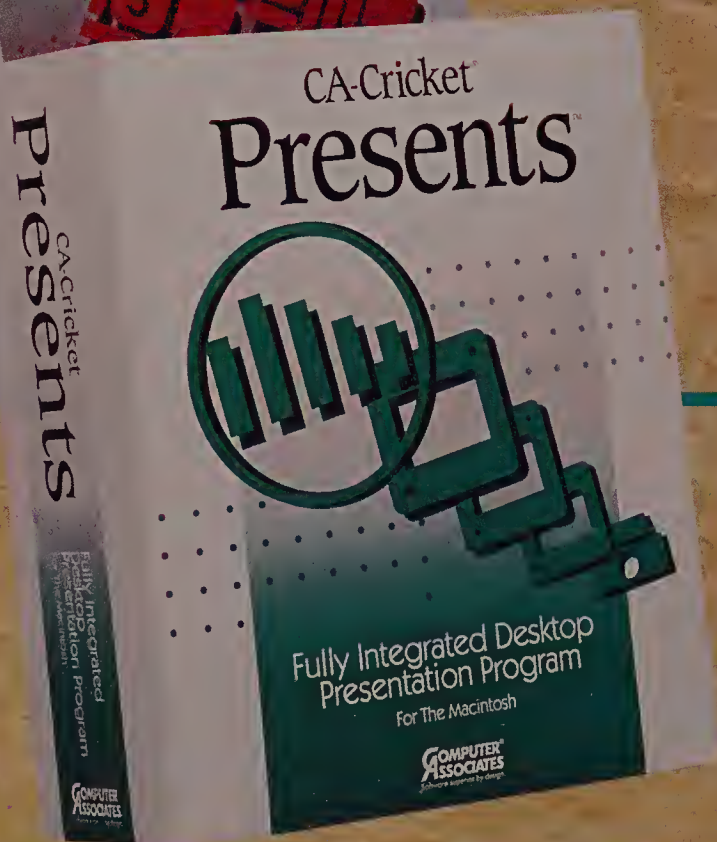
Simply Accounting

Looking for a complete entry-level accounting package? Simply Accounting contains everything you need to get up and running in a flash: a primer that walks you through basic accounting principles, understandable documentation and a complete tutorial.

Computer Associates #04553 7 ✓

CA-Cricket Presents

CA-Cricket Presents is an easy-to-use, powerful application used to create professional-quality graphic presentations on the Macintosh. It offers all of the tools you need to create a complete presentation with display-quality graphics, speaker's notes and audience handouts. CA-Cricket Presents provides versatile tools to help create a quick presentation for a meeting in ten minutes, or a full-blown professional-quality presentation that will win over even the most critical audience. Computer Associates #01475

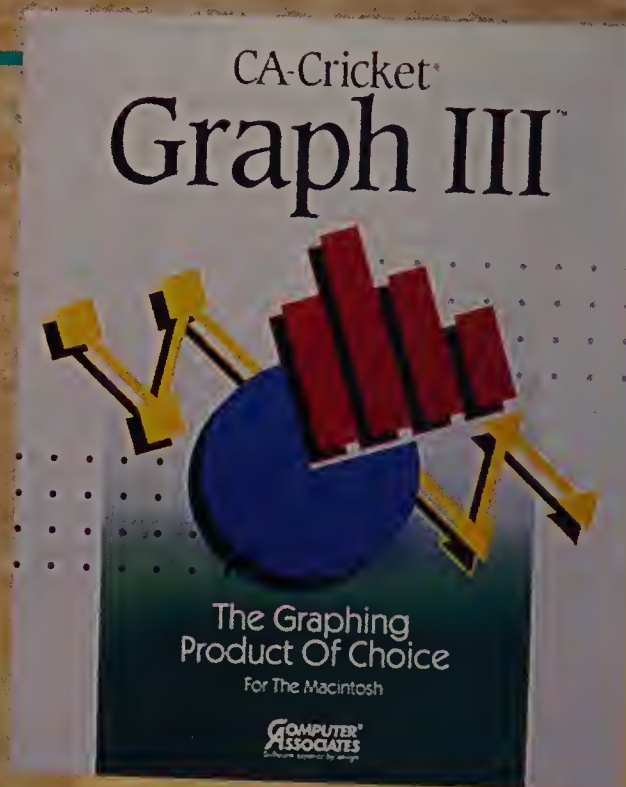
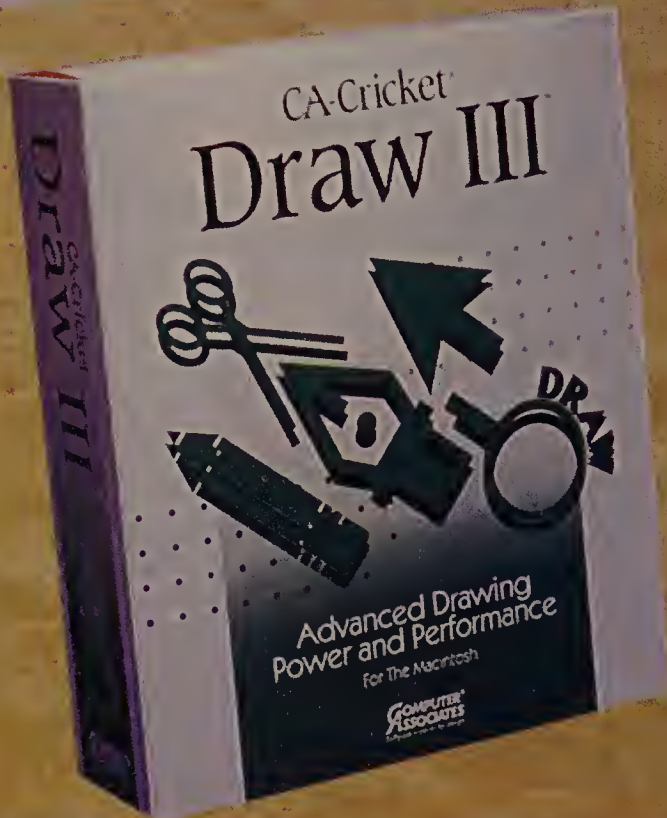


CA-Cricket Draw III

\$198

CA-Cricket Draw is the intuitive, object-oriented drawing program for producing professional-quality graphics on the Mac. It brings high-end drawing power to every level of user with its Bezier-based tool palette, object-to-Bezier path conversion, interactive and flexible color interface, comprehensive text processing and powerful PostScript special effects.

Computer Associates #04414



CA-Cricket Graph III

\$134

CA-Cricket Graph III makes creating graphs easy. In seconds, you can convert raw data into a complete, professional-looking graph. There are no complex dialogs or commands to learn, no lengthy procedures to follow. Editing graphs is easy too, just double-click a graph component or other object, make your changes in the dialog that appears and view the results immediately.

Computer Associates #00203

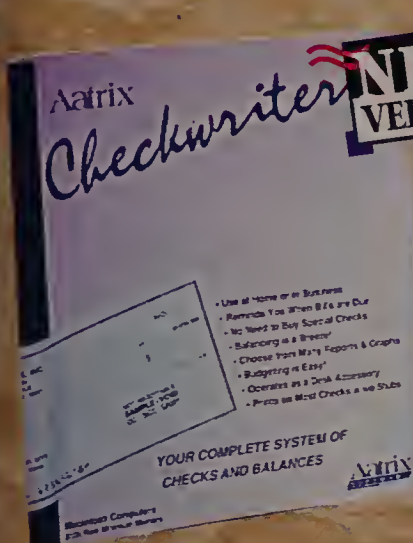


MAJOR CORPORATE P.O.'S ACCEPTED

Aatrix CheckWriter II 4.0 **NEW VERSION** **\$34**

CheckWriter 4.0 is one of the most versatile finance programs in its class! It automatically reminds you when bills are due, and it's easy to start. Version 4.0 offers complete budgeting with over-budget warning, graphing and much more.

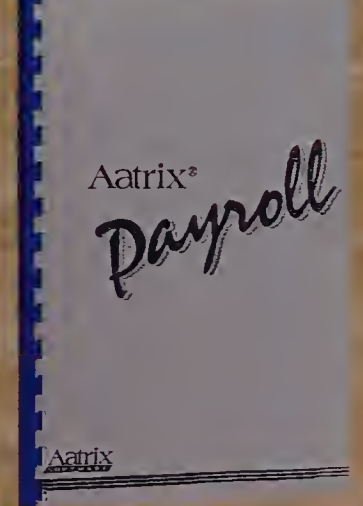
Aatrix Software #00192



Payroll 4.0 **\$106**

Do your company payroll in a fraction of the time with Payroll 4.0. This easy-to-use program walks you through all the steps! Federal, state and many local taxes are included. The incredible power allows eight customizable deductions, salary or hourly pay and calculation of FUTA, SUTA, Social Security and Medicare. With the built-in reports generator you can print 941s, W-2s and other custom reports.

Aatrix Software #01871

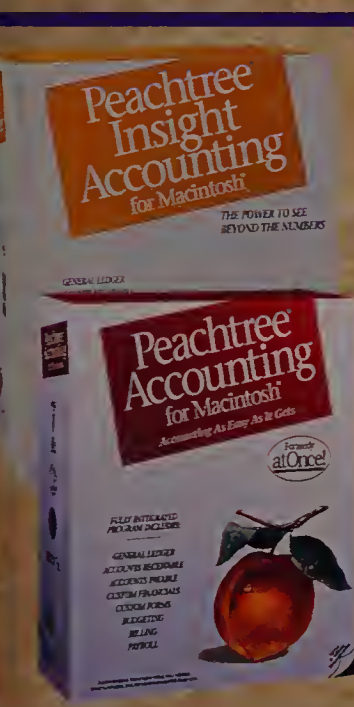


Peachtree Insight Accounting for Macintosh **NEW VERSION** **\$298**

Peachtree Insight Accounting gives you the power to see beyond the numbers. The package includes: General Ledger, Accounts Receivable, Accounts Payable, Payroll and Inventory. Each module can be used stand-alone or fully integrated with General Ledger. Expert Reports analyze your data and spot potential problems before they happen. Other features include import/export, custom financials, bank reconciliations and more.


Peachtree #05745

#02594 Peachtree Accounting for the Mac \$74



MultiLedger **\$234**

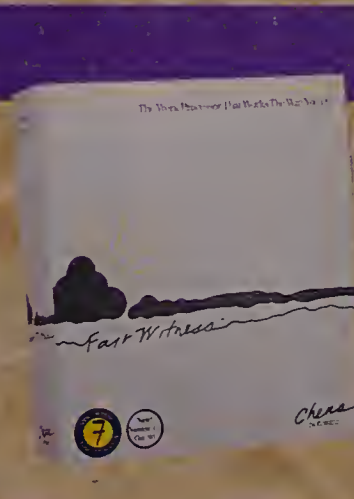
Even though MultiLedger contains many features, it still runs lean and fast. This complete yet straightforward accounting system for small to medium-sized businesses provides General Ledger, AR, AP and Inventory in one easy-to-use program. CheckMark Software #02410



New Low Price

Fair Witness 1.2 **\$178**


Fair Witness is an ingenious way to integrate the things you do as part of a group or as an individual. It combines the best of an outliner, a database and a project manager into one handy, easy-to-use program. Winner of the 1991 MacUser Editor's Choice Award for Best Organizational tool. Chena Software #00334



Business Plan Toolkit 4.0 **\$94**

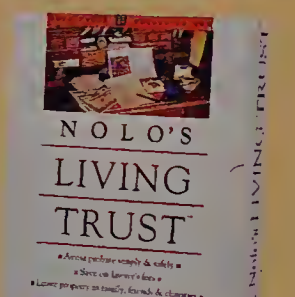
If you are an entrepreneur attempting to raise capital or secure a loan, this package is for you. Business Plan Toolkit is a practical guide for preparing a professional business plan with complete financial analysis, charts, sales forecasts and winning text. A complete sample plan is included on paper and on disk.

Palo Alto Software #03910



NOLO's Living Trust **\$43**

Avoid the delays and costs of probate. This simple question-and-answer format lets you create, change or revoke your living trust at any time. "A polished product and a great value," says MacWorld. NOLO Press #04720




WillMaker 4.0 **\$34**

Write or change your will without calling a lawyer. Just answer the questions, and WillMaker constructs your personal will with full legal standing.

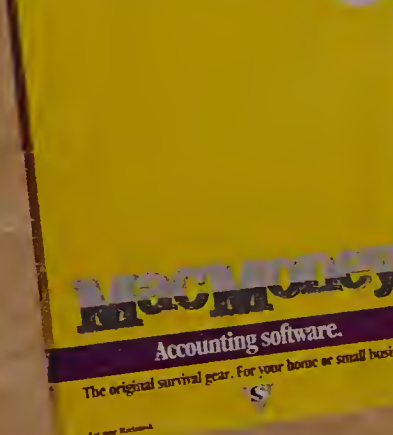
NOLO Press #00481

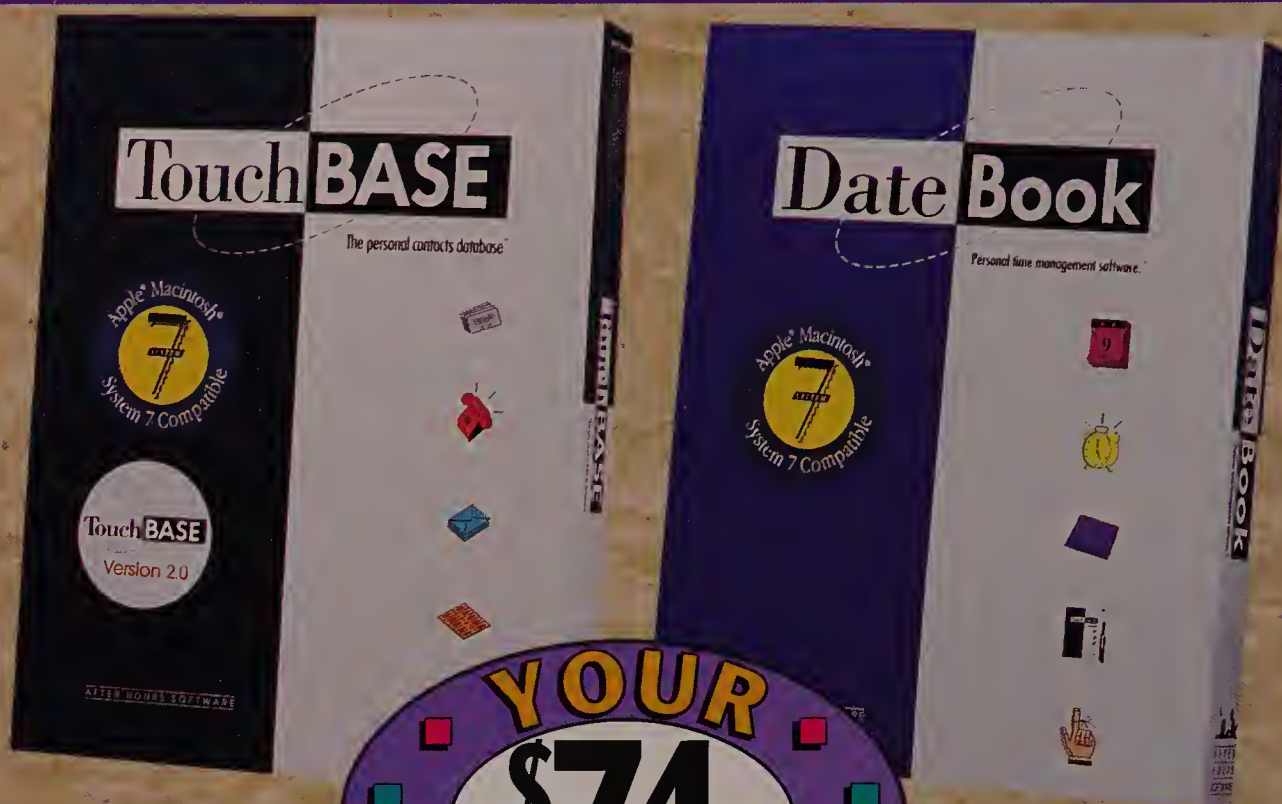
#05212 NOLO's Personal Recordkeeper \$28



MacMoney 3.53 **\$57**

MacMoney is a full double-entry personal and small business bookkeeping system and financial planning tool. MacMoney tracks expenses, bank accounts, credit cards, assets, liabilities, cash and income. You can create up to 250 accounting categories and divide transactions among as many as 8 categories. Survivor Software #01582





Buy
DateBOOK
for \$48
when
purchased
with
TouchBASE!
#05596

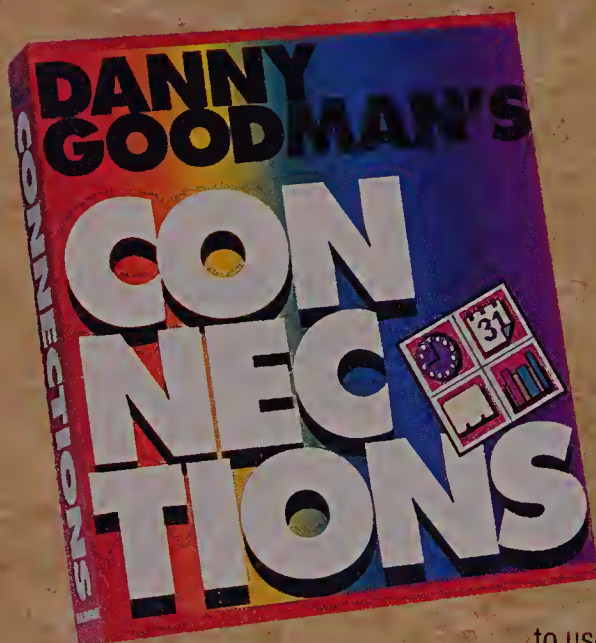
**YOUR
\$74
CHOICE**

TouchBASE 2.0

TouchBASE 2.0 just might be the most functional piece of Mac software you'll ever purchase. TouchBASE is a database which keeps track of personal and business contacts. It remains handy all the time—no matter what application you're using. The intuitive interface makes it a breeze to learn and use. After Hours Software #03908

DateBOOK

Keep your professional life running smoothly with DateBOOK, the Macintosh personal organizer that enables you to enter and keep track of appointments, schedules and things-to-do. DateBOOK prints monthly, weekly and daily schedules as well as fILOFAX and DayTimer formats. After Hours Software #05209



\$124

Connections

Manage all your personal information, without the hassle of multiple DAs and utilities. Connections integrates personal and shared calendaring, to-do lists, alarms, telephone directory, contact management and flexible note taking, yet it is remarkably easy

to use. It's ideal for PowerBook users who want to take the office on the road.

- The multiple window format lets you quickly navigate to the information you need. The wide variety of views of your appointments and to-do items includes highlighted deadlines and overdue items.
- The customizable personal libraries let anyone create simple databases that include Connection's searching, sorting and linking capabilities.
- The modular design has been engineered to expand and grow as new software and communications technologies become available.

Concentrix #05382



\$41

First Things First

The only to-do/reminder program that's instantly available, lightning fast and easy to use. Saves time and energy managing the work you do at your desk. Awarded "Utility of the Year" by MUG News Svc. Visionary Software #04448

\$89
In Control

Get organized fast. Get In Control! MacWEEK calls this to-do list manager, "undeniably the product of choice." With it you can track and manage the details of your daily activities: deadlines, priorities, status, staff assignments, anything you want. It's powerful multi-column outline lets you organize and reorganize lists instantly. Macworld says "If you make lists—and mercy on you if you don't—get this program." Attain #04949








↓↓↓↓↓ 1/2



INTERNATIONAL ORDERS WELCOME! 1-206-883-3088






Aldus PageMaker 4.2 with FREE PrePrint

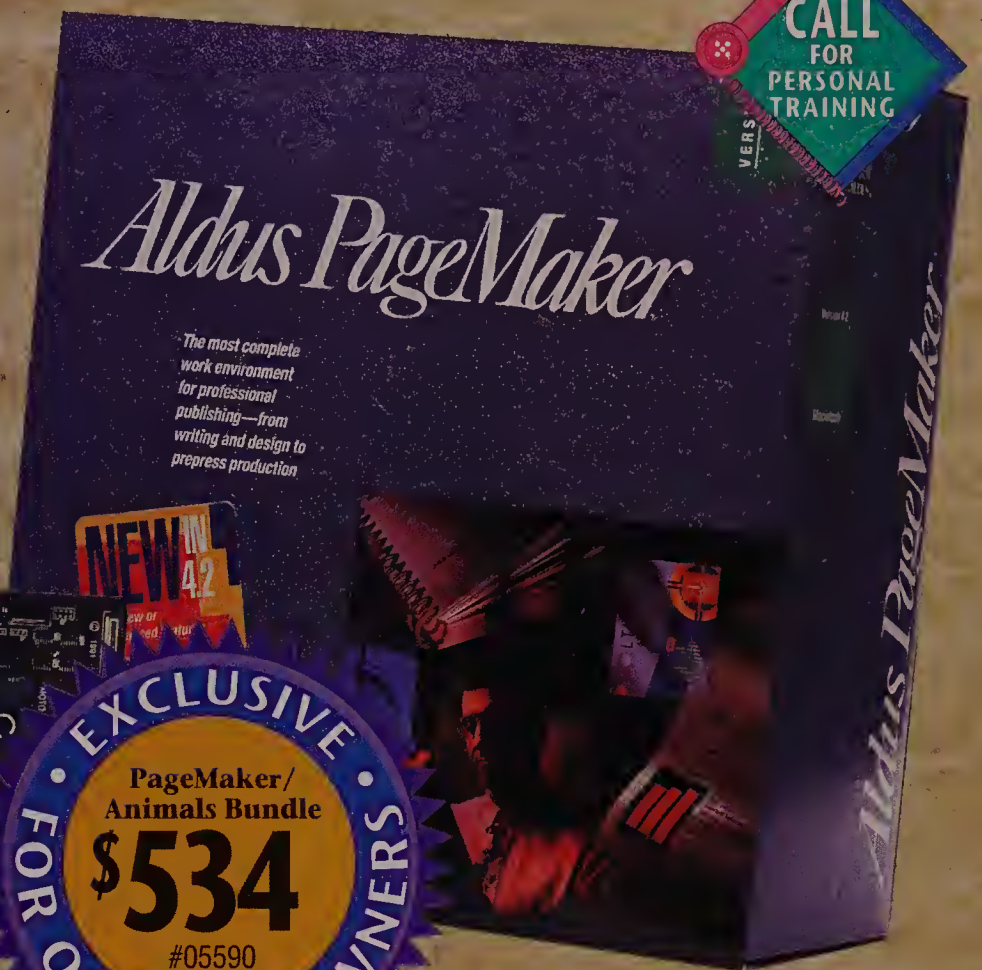
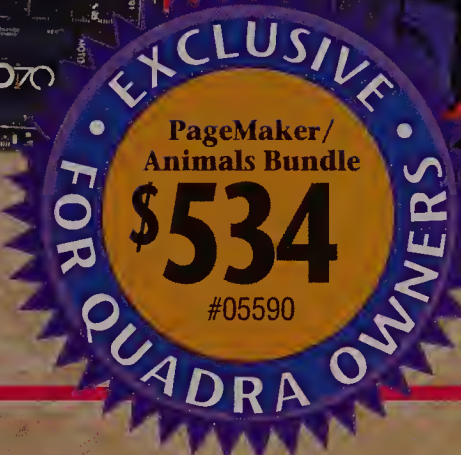
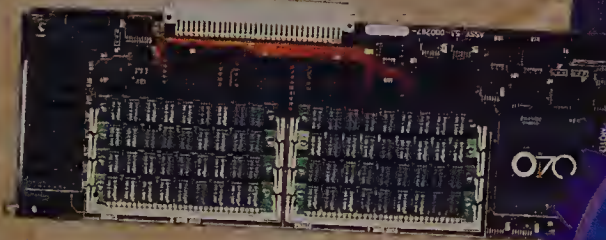
\$494

This is it. The one and only PageMaker desktop publishing powerhouse from Aldus. The new System 7 Savvy version 4.2 is packed full of enhancements and features. There's a new hotlink between PageMaker and Aldus Freehand 3.1. By taking advantage of the Apple Events, this hotlink allows you to update placed EPS files without leaving the PageMaker document. PageMaker 4.2 also supports other standard System 7 features such as Subscribe, Balloon Help and TrueType. And Aldus is now shipping PrePrint with PageMaker 4.2. With PrePrint you can produce color separations of any PageMaker publication and enhance and correct TIFF images. Some of the other new enhancements to PageMaker include: a control palette for precise numeric placement and scaling of objects; user-interruptible screen redraw; baseline-to-baseline leading; page sizes up to 42"x42" and much more. Aldus #04573     



When you purchase Aldus PageMaker 4.2 and *Using PageMaker* (#05235) receive the book for only \$19.

-  Improved Performance
-  Hotlink to Aldus FreeHand 3.1
-  System 7 Savvy
-  Numerical Control
-  Aldus Additions



Personal Press 2.0













































\$98

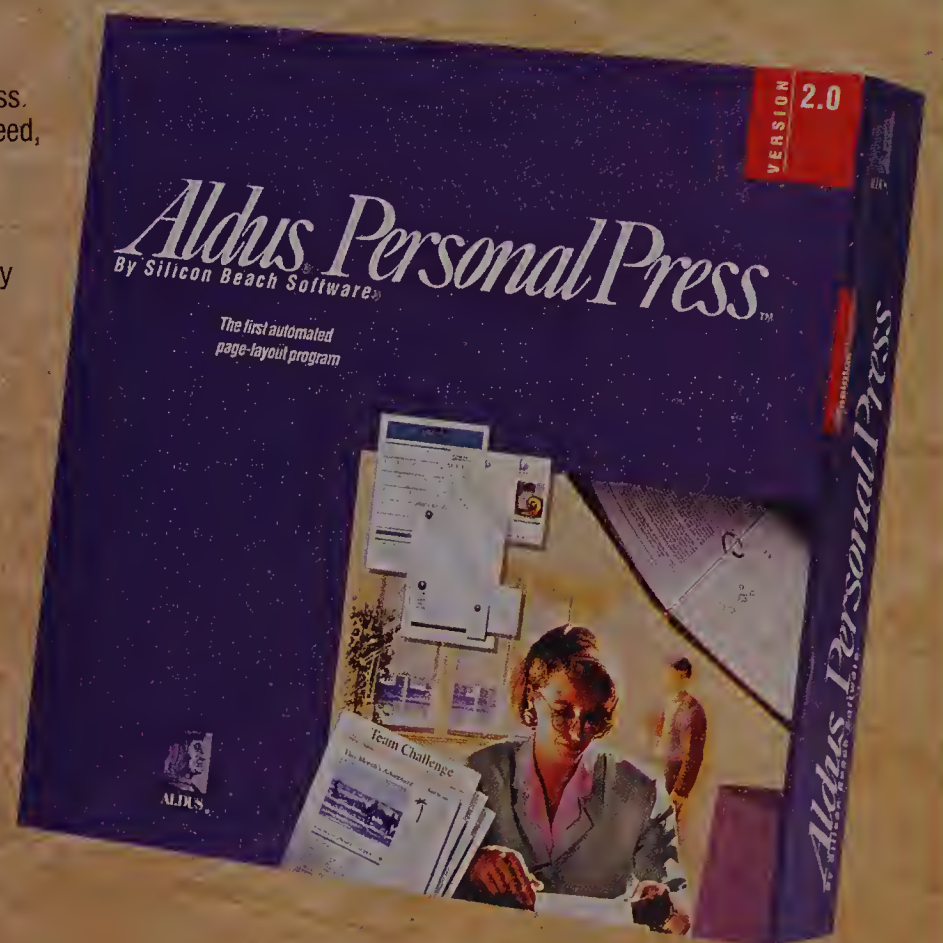
Do you want a powerful desktop publishing package that requires a minimum investment of your time and money? Take a good look at Aldus Personal Press. This easy and effective desktop publishing program has all the features you need, including page layout, full-featured word processor and powerful graphics capabilities—everything you need to produce flyers, newsletters, brochures, reports and manuscripts.

New Aldus Personal Press 2.0 is the only page layout software that intelligently assembles your text and graphics automatically so you look like an expert.

New features include:

- "Intelligent" templates designed by professionals that give you ready-to-print documents in minutes.
- Copy Fitting automatically adjusts your text to fit the designated space.
- AutoFlow automatically adds pages as you need them.
- New System 7 Savvy features help you speed through the production process
- Aldus Additions commands such as automatic drop caps, bullet text and pull-down quotes make it easy to design quickly and accurately.
- Full-featured word processing means you don't have to switch applications every time you want to edit text.
- Plus, you get a generous selection of image controls, drawing tools, free rotation of text and graphics, text wrap, spot color, on-line help and more.

Aldus #05493                                            



The Mac Zone
Established 1986

CALL 1-800-248-0800

OPEN 24 HOURS
EVERY DAY

DESKTOP PUBLISHING

1991 WINNER FrameMaker 3.0

The leading document publishing software for creating business and technical documents, FrameMaker 3.0 combines full-featured WYSIWYG word processing, graphics, page layout, equations editing, HyperText and document tools in a single, easy-to-use application. Multilingual documents are easy with 13 international language dictionaries and user interfaces in French, English, German and Swedish. Frame Technology #05800



\$79 Layouts™ by Postcraft

Punch-up your creativity! Postcraft's award-winning Layouts—219 professionally-designed page-layout templates for PageMaker & Quark. A fascinating variety of camera-ready B&W and color designs—brochures, newsletters, business cards, letterheads, envelopes and business-reply cards. Customize them with your own copy, fonts and graphics. Output to any printer. All

templates have crop, registration and fold/score marks. Also, ask about Postcraft's Stationary and Flyer packs!

Postcraft International 1-800-333-3333

#04162 Layouts-Quark • #04086 Layouts-PageMaker

#05494 Layouts-Stationary Combo Pk \$49

#05495 Layouts-Flyer Combo Pk \$49

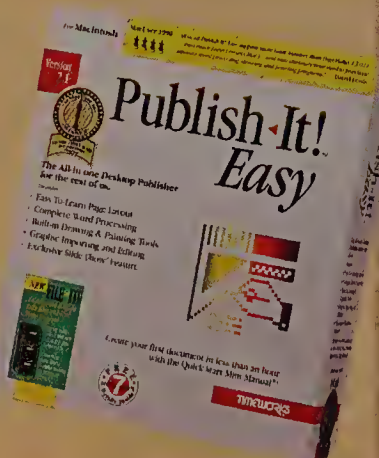


BannerMania! \$34

Get BannerMania! and get your message across, FAST! There's never been a banner maker like it! BannerMania! gives you everything you need to quickly and easily produce spectacular designs—using styles and effects that are available nowhere else. Stretch type, distort shapes, then watch your message print out with perfectly formed characters—and without jaggies! You can also produce traffic-stopping bumper stickers, sensational signs and posters with pizzazz. Brøderbund #03970

Publish It! Easy 2.1 \$138

Publish It! Easy is the all-in-one desktop publisher. It combines everything you need—page layout, word processing (complete with thesaurus and spell-checker), built-in drawing and painting tools and a slide-show—into one simple, easy-to-use package. File It! (included) is an advanced database and mail merge program—and it's built right into Publish It! Easy. That means you don't have to leave Easy to create a database, to customize a document or to select, sort, edit or change your data. TimeWorks #04769

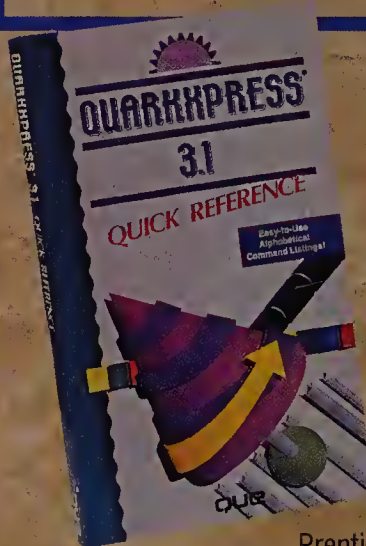


QuarkXPress 3.1 \$548

You will find that no matter how you use the new QuarkXPress 3.1, the program's ability to perform virtually all layout and production tasks will make the publishing process easier. A library stores frequently used items, and a pasteboard provides a work area next to each page. You can group text and graphics as a single element, and rotate them incrementally a full 360 degrees. Quark #05236

The Quark 3.1 Advantage—

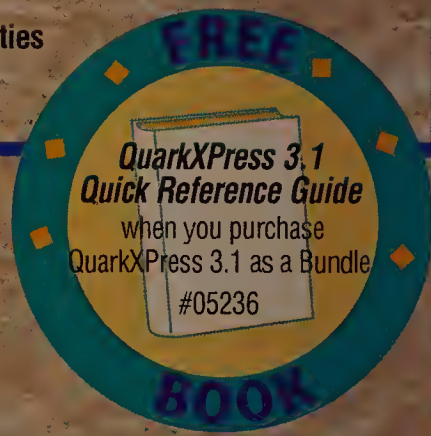
- Easy To Learn and Use
- Precise Typographical Control
- Professional Color Support Capabilities
- Advanced Text Handling



\$9

QuarkXPress Quick Reference Guide

Take control of the learning curve with the QuarkXPress Quick Reference Guide from Prentice Hall. This informative guide takes you inside the Quark environment and teaches you how to tap into the full power of this feature-packed program. Easy-to-follow lessons take you through the layout process step by step. You'll glean special insights from the experts on how to save time and improve the quality of your finished work. If your design time is valuable—you cannot afford to be without the QuarkXPress Quick Reference Guide. Prentice Hall #05097



MAJOR CREDIT CARDS ACCEPTED

Aldus Persuasion

\$324

Aldus Persuasion 2.1

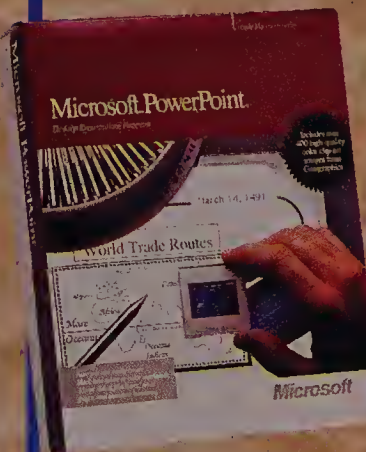
Need to develop presentation

graphics? Let Aldus

Persuasion 2.1 do all the work. Just select

one of the predefined templates (or create your own) and

type your ideas into the outline. Persuasion automatically prepares your slides from the outline. Its Auto Template function enables you to preview, combine or change template designs at will. It provides a variety of predefined charts and graphs (or you can create your own) and automatically generates speakers' notes and handouts. In the slide show mode you can choose from 5 different wipe and dissolve effects. Persuasion includes drivers for the most popular printer and film recorders. New Version 2.1 incorporates powerful new features such as: full System 7 compatibility, a larger template library, a RunTimePlayer that allows finished presentations to run on systems without Persuasion installed, and full cross-compatibility with the PC version. Aldus #00346



NEW PRODUCT

\$244

Microsoft PowerPoint 2.1

Now you don't have to rely on outside sources to produce slides and overheads for your presentations. Microsoft PowerPoint for the Macintosh allows you to make slides and overheads directly on your Mac! Microsoft #01220

SAVE \$18

when you purchase the PowerPoint 3.0/ MusicBytes Bundle #05746

Prosonus MusicBytes

\$42

MusicBytes makes your Mac sing! It's one of the hottest collections of clip music and sound effects available. You get 27 original license-free tunes as CD-Audio, 22k and 11k AIFF files and MIDI files. Plus you get over 100 striking Sound FX, from "oh-ohs" to bird whistles to explosions. Prosonus #05626



MORE

The Fastest Way to Organize and Present Your Ideas



\$264

More 3.1

More 3.1 is your key to creating professional presentations. Start by organizing your thoughts with the outline. Want to add some graphics? With More 3.1, it's easy to import clip art to illustrate your work or create your own. Add some of More's dazzling charts and graphs and your work comes to life. When you're finished, More 3.1 will print

out overhead transparencies, 35mm

slides (overnight through Autograph Service Center) and professional-looking audience handouts. Symantec #04464



\$94

Yang's Platinum Laser Pointer Pen

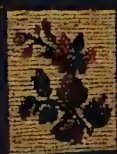
Laser Pointer is a stylish, low-cost hand-held laser pointing device. It projects a red laser beam up to 300 feet, enabling you to work the room while conducting presentations or training sessions. It's safe, durable, lightweight and uses only 2 AAA batteries (included), and sells for less than half the cost of competing products. Yang's International, Inc. #05522

Pixar Typestry

\$186

With Pixar Typestry you'll create exciting dimensional text from Type 1 and TrueType fonts. Typestry invokes RenderMan magic to transform a simple word into an extraordinary three-dimensional picture. It's ideal for creating images for logos, publishing, design, presentation graphics or multimedia. Pixar #05668

PIXAR TYPESTRY



Effects Specialist by Postcraft

\$94

A powerful font-enhancement tool to transform any font into spectacular display type. Create logos, headlines, mastheads, and more! 120 preprogrammed custom effects, each with its own modifiers. Offers kerning, scaling, rotation and skewing. System 7 compatible. Postcraft International #04049





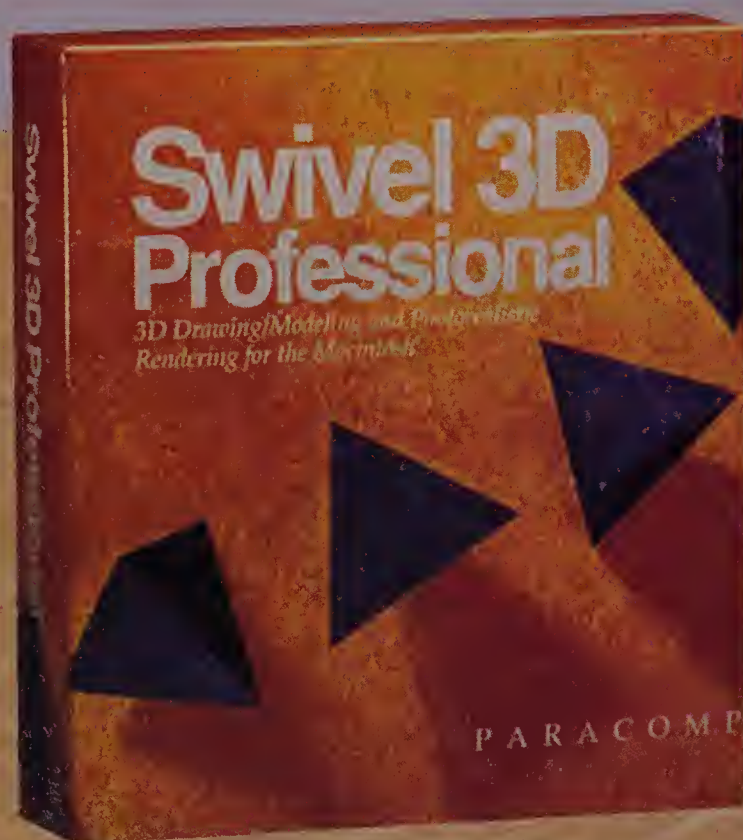
\$998

Professional QuickTime Authoring Kit

Save nearly \$1,000 off the individually-priced items with Macromedia's Professional QuickTime Authoring Kit! You get everything you need to start making QuickTime movies right away. With

Director 3.1 you can

create, combine and synchronize sophisticated graphics, text and animations with audio and video for attention-grabbing digital effects. You can also add full interactivity with buttons, scripts and much more. MacRecorder Sound System Pro allows you to sample, record and edit sound to spice up any multimedia production. ClipMedia gives you an incredible collection of sound effects, animations, digital video sequences and more that you can cut and paste into your own productions! Macromedia #05018



Swivel 3D Pro 1.0 w/MacRenderMan

\$598

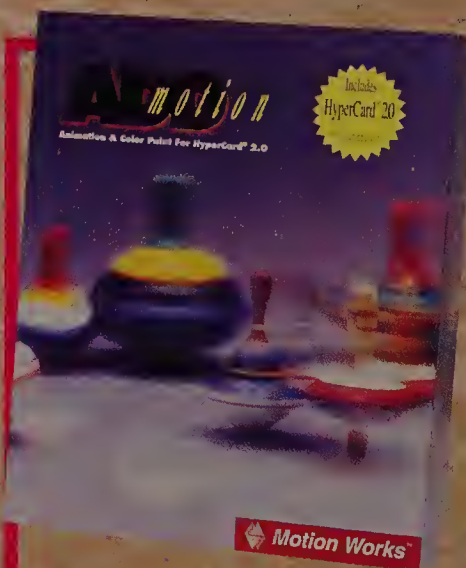
This exciting multi-media production bundle combines two powerful graphics standards: the award-winning Swivel 3D Professional, the standard in 3D modeling on the Macintosh, and MacRenderMan, the Mac standard in photorealistic rendering. Including new features for 3D font creation and MacRenderMan support, Swivel 3D Professional is the 3D color graphics solution for multimedia presentations, animation, illustration, product design and desktop publishing on the Macintosh. It is also ideal for use with MacroMind Three-D for creating final high-quality rendered animation. MacRenderMan creates photorealistic images using shaders which are descriptions of surfaces, color, texture, opacity and reflectivity. Macromedia #04808



\$398

DiVA VideoShop

Create and edit your own high-impact QuickTime movies with DiVA VideoShop. This fun, easy and powerful application lets you record video and audio clips with any QuickTime digitizing board. You can also edit QuickTime movies simply by dragging and dropping Micons (movie icons). Polish your production by adding time-based transitions, overlays, titles and filter effects. DiVA VideoShop provides up to 16 video and audio tracks for movie layout, and layering. Plus you get the Image Bank CD Collection, a CD-ROM collect of 300 movies, 70 music scores and a sound effects library, FREE. Cut and paste them into your own productions. DiVA #00602



\$94

ADDmotion II

This seamless multimedia extension for HyperCard brings 24-bit color paint animation and sound editing to HyperCard 2.1. ADDmotion II's ease of use and price make animation and multimedia available to Mac enthusiasts and HyperCard users. Exports QuickTime movies and includes HyperCard 2.1. Motion Works #00194

PROmotion w/FREE PrimeTime CD

\$248

With PROmotion's 24-bit color paint, animation and sound editor you can make QuickTime movies, storyboards and presentations quickly and easily—even if you can't draw. It's the perfect choice for business and artistic professionals. Includes extensive System 7 support, Sony Print to Video and PrimeTime CD-ROM. Motion Works #01039

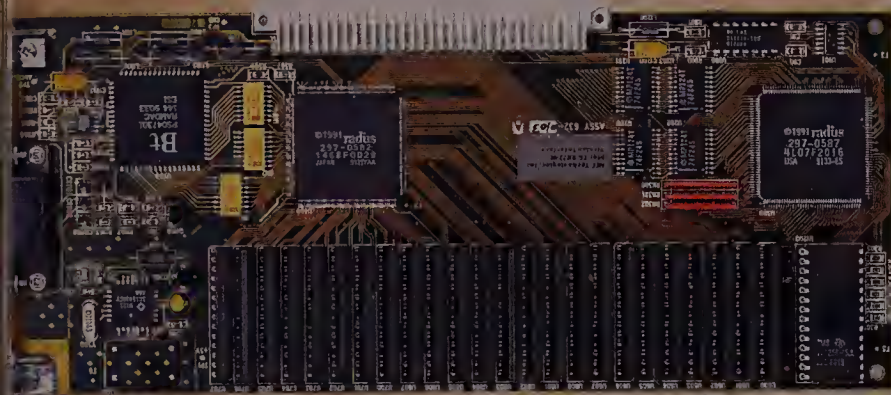
PrimeTime CD

\$64

PrimeTime CD is a collection of media and clips for use with PROmotion and ADDmotion II. The CD includes a media browser containing over 100 actors (in both color and black-and-white), background props and over 120 sound clips covering business, education and entertainment. Motion Works #01038



FAX YOUR ORDER ANYTIME: 1-206-881-3422



PrecisionColor 8X Display Interface

The PrecisionColor 8X Display Interface represents one of the best display interface values available for your Radius (two-page and color), Apple (Apple portrait, AppleColor HighRes RGB and two-page displays), NEC (MacSync, 3D, 3D and 5D as well as other VGA displays and compatible multi-frequency monitors). This 8-bit color NuBus interface displays 256 colors (upgradable to 6-bit or 24-bit). Provides multiple resolutions and includes QuickDraw acceleration. Works on any Macintosh NuBus (including Quadra) computer. Radius #04803

#04804 PrecisionColor 24X Display Interface \$1798

\$798

\$2968

Radius PrecisionColor Display/20

The Radius PrecisionColor Display/20 is a sophisticated 20" Trinitron® color display for Macintosh and PC computers. The multi-frequency PrecisionColor Display/20 is microprocessor-



controlled, connects to a wide array of video interface cards and gives users an unprecedented amount of control over image parameters. PrecisionColor's built-in microprocessor establishes sync with the interface card, provides the best image for the resolution and memorizes any user fine tuning. Radius #04899

#04504 Radius 19" Two-Page Display \$998

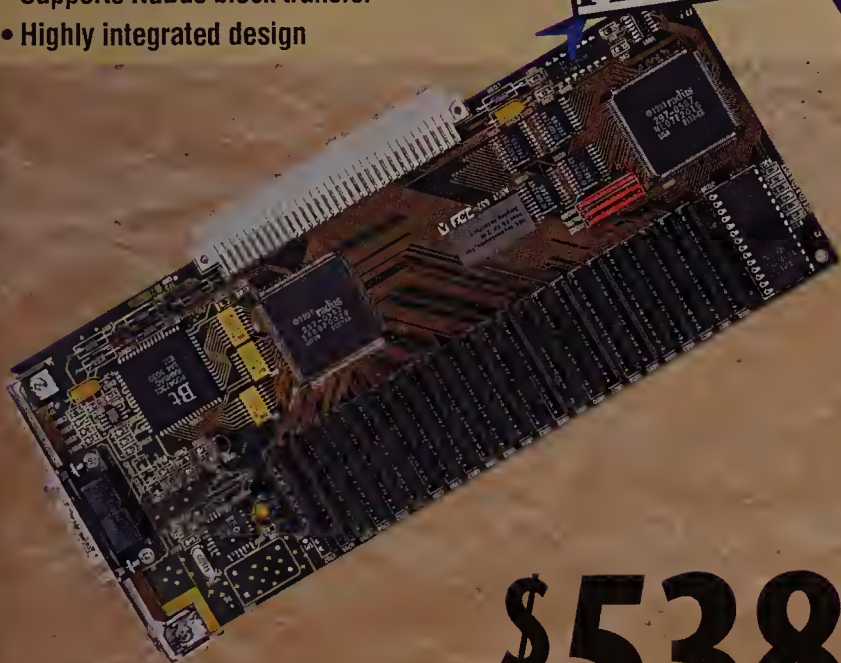
#04505 Radius 21" Two-Page Display \$1298

#04205 Radius Pivot Display: Monochrome \$764

#04206 Radius Pivot Display Color \$1298

- Extremely low cost for 24-bit color
- Includes QuickDraw acceleration
- Supports NuBus block transfer
- Highly integrated design

NEW PRODUCT



\$538

PrecisionColor 24Xp

Dollar for dollar it's tough to beat the PrecisionColor 24XP accelerated display interface card from Radius. This 24-bit solution is perfect for Apple 13" and 16" users. With its low cost and on-board acceleration for 16" displays, no other board comes close. It gives you breath-taking 24-bit color depth (16.7 million colors). It supports the Apple 16" and 13" and other VGA and SVGA color displays and the landscape mode of the Radius Color Pivot/LE. Radius #05496

\$2158

VideoVision

Macintosh digital output to regular VHS video tape is here! With this amazing new breakthrough hardware and software technology you can create easily distributable presentations, training tapes, sales seminars, interactive product demonstrations and more. A unique filtering process allows flicker-free 24-bit (16.7 million) color motion video graphics output from computer to videotape. Because VideoVision incorporates technology licensed from Apple, it offers immediate compatibility with all applications that support QuickTime. The VideoVision package consists of a single, digital interface card with built-in video input, video output and 24-bit graphic display capabilities, an external connector panel for video and audio connections and comprehensive software controls. The interface card fits in the NuBus slot of any Macintosh II, IIx, IIcx, IIci, IIfx or Quadra computer. Radius #05650





\$249

Fractal Design Painter 1.2

Fractal Design Painter™ lets your Macintosh create original art or embellish scanned images with realistic natural media effects by duplicating traditional tools and textures in 24-bit color. Fractal Design #04460



Designer 2.0 \$619

With Ray Dream Designer, you don't have to settle for flat illustrations. The program's drawing and text tools are virtually the same as those in most 2D illustration programs. The only difference is, now your objects have the realistic look of three dimensions. You can also import paint or scanned images and wrap them around an object or text for instant dimension. What's more, special effects and perspective are all handled automatically. So you can make changes without starting over.

Ray Dream #00441

#04150 Jag 1.0\$74

Pantone Process Color Imaging Guide 1000

\$62

The perfect companion to all PANTONE-licensed software programs, the Color Imaging Guide provides a visual comparison of solid PANTONE color and process (CMYK) simulations as they will appear on the final printed piece. PANTONE #05521



Pantone Process Color System Guide

\$54

This tool provides you with visual color standards and screen percentage values for over 3,000 new CMYK combinations which are easily specified and reproduced with your favorite graphics program.

PANTONE #04056



Satellite 3D \$128

Produce graphics that will make your company stand out from the crowd with Satellite 3D. With it you can transform any 2D vectorial graphics created in Adobe Illustrator or Aldus Freehand into stunning three-dimensional perspective artwork. Satellite 3D does not merely deform objects to approximate a 3D view; It actually computes the perspective and illumination and saves it as an editable Illustrator or PICT file for illustration, packaging, animation and more.

Calliscope #00634



Aldus FreeHand 3.1

\$393

Aldus FreeHand is the easy-to-use professional quality graphics tool that combines an elegant user interface with exceptional depth of function and flexibility. With it you can draw, do page layout, use vivid PANTONE color and import/export graphics files in a wide variety of popular file formats. It can even be used in combination with pressure-sensitive tables.

- Powerful graphics capabilities let you create the design elements you need.
- Customizable creative interface increases your productivity.
- Built-in flexibility makes it easy to explore new design ideas.
- Superb text handling capabilities help you create the typographic effect you're looking for.
- Precision options ensure exact placement of your design elements.
- Versatile production features give you complete control, from rough draft to finished product.

Aldus #00333 ✓ ✓ ✓ ✓ ✓ 1/2



Canvas 3.0 \$258

This new version of Canvas 3.0 delivers more than 100 new features, including significantly enhanced text handling, object blending, Bezier font outlines and full support for Deneba's revolutionary open architecture technology. Deneba #00803 ✓ ✓



KNOWLEDGEABLE SALES ADVISORS

Great Thunder!

ThunderStorm Makes Adobe Photoshop Run Like Lightning!

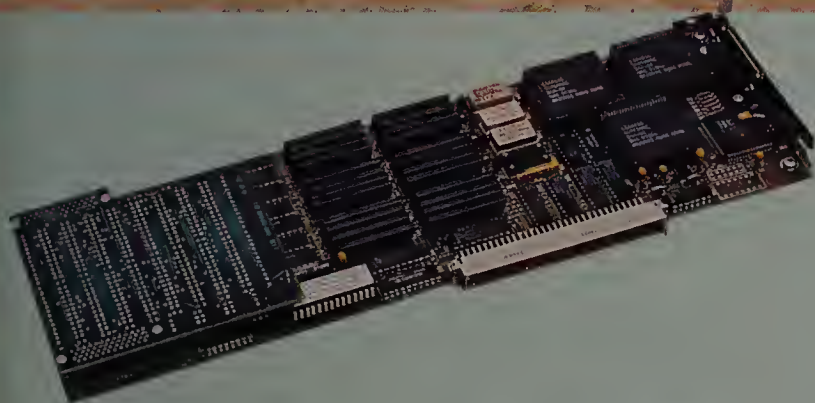
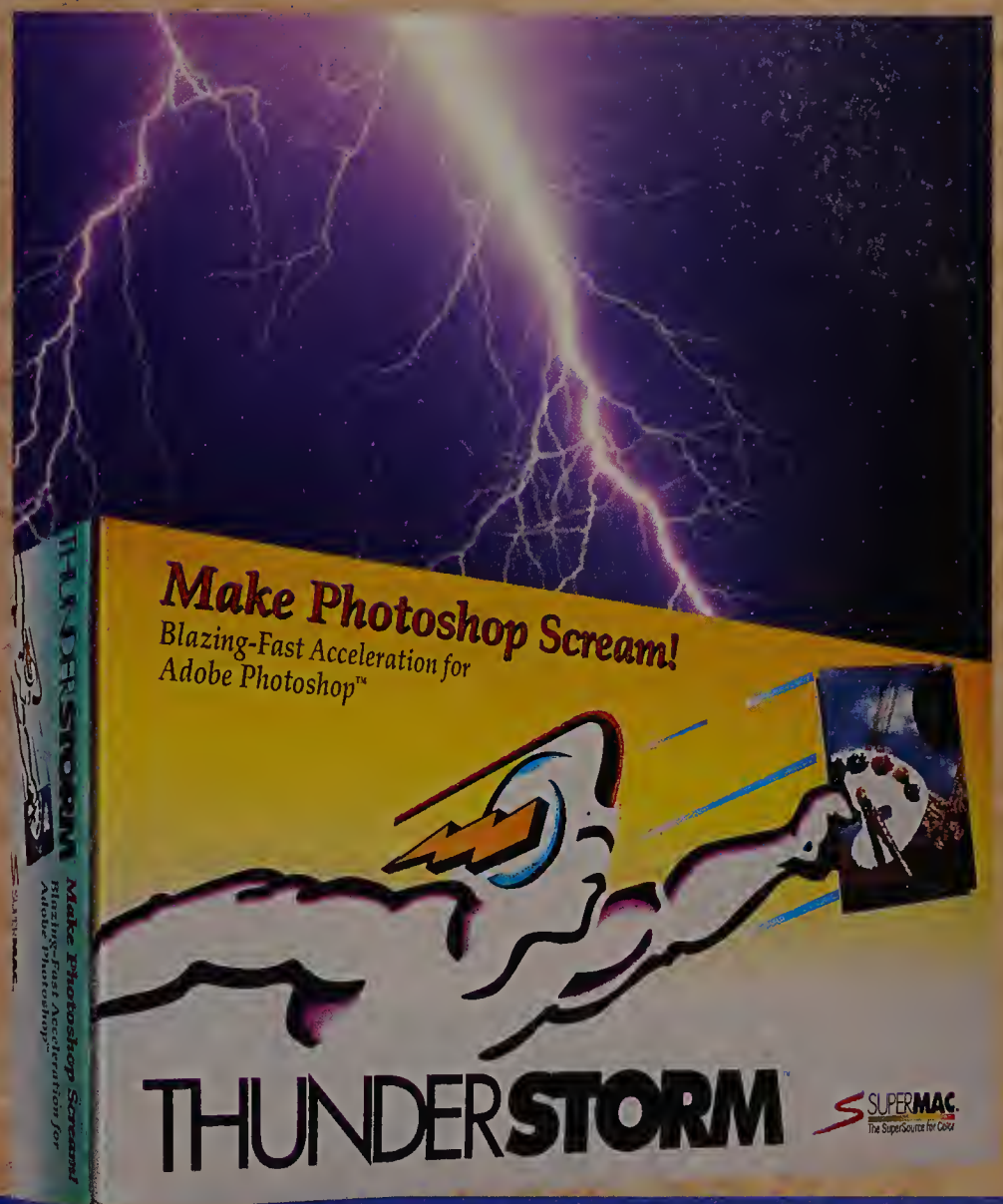
ThunderStorm

\$888

Put some thunder in Adobe Photoshop with ThunderStorm, the accelerator for Adobe Photoshop that provides the industry's fastest performance for crucial Adobe Photoshop filters and functions. This single card solution—based on dual, programmable DSPs that are optimized for Adobe Photoshop filters and functions—works transparently from within Adobe Photoshop to accelerate the functions that color professionals use the most.

- Runs selected filters and functions faster than anything else on the market!
- ThunderStorm produces the same high-quality effects you've come to expect from Adobe Photoshop, but you get them much, much faster!
- ThunderStorm delivers as much as a 1100-percent improvement over Photoshop's native Gaussian Blur, Unsharp Mask, Blur More, Motion Blur, Sharpen Edges and Sharpen More filters, as well as the Resize function!
- ThunderStorm also compresses and decompresses retouched images within Photoshop by as much as 600-percent faster than before!

SuperMac #05797



Spectrum/24 Series III True-Color Board

\$872

If photorealistic artwork is a must for you, so is the Spectrum/24 Series II. They give you the power and functionality you need to move into the exciting realm of ultra-realistic color graphics. With ASIC-accelerated drawing rates, a virtual workspace, instantaneous pan and zoom and flicker-free WYSIWYG resolution, it's ideal for large-scale, true-color graphics applications. Because the QuickDraw graphics engine is an integral part of the Spectrum/24 Series III, it doesn't cost extra. And it doesn't take up an extra slot in your Mac. Only SuperMac gives you large-screen support, 24-bit color and acceleration on the same card!

SuperMac #05117	
#05115 Spectrum 8 LC	\$438
#05116 Spectrum 8 Series III	\$438
#05118 Spectrum 8/24 PDQ si	\$898
#05119 Spectrum 8/24 PDQ	\$898

\$2698

SuperMatch 20•T Multimode Trinitron® Display

The SuperMatch 20•T is an exceptionally versatile display for color professionals who want a desktop view that's right for every project. With easy customization controls, Trinitron technology, and exceptional color rendition, SuperMatch 20•T is right for every work environment. It works with virtually every small- and large-screen graphics interface on the Mac, PC and other systems. Digital SmartTouch controls make it easy for you to adjust horizontal and vertical sizing and more. Best of all, the SuperMatch 20•T is built to SuperMac's rigorous quality standards.

SuperMac #05125



#05127 SuperMatch 19" Color Display \$1798

Adobe Illustrator 3.2 with ATM \$364

Now Shipping With Adobe Type Manager, FREE!

Once you try Adobe Illustrator software, you'll find it's the single most powerful design tool you've ever owned. That's because Adobe Illustrator is the only program with the precise illustration, extensive text handling, automatic graphing and color separation capabilities professional designers need—all in one package.

Where to begin?

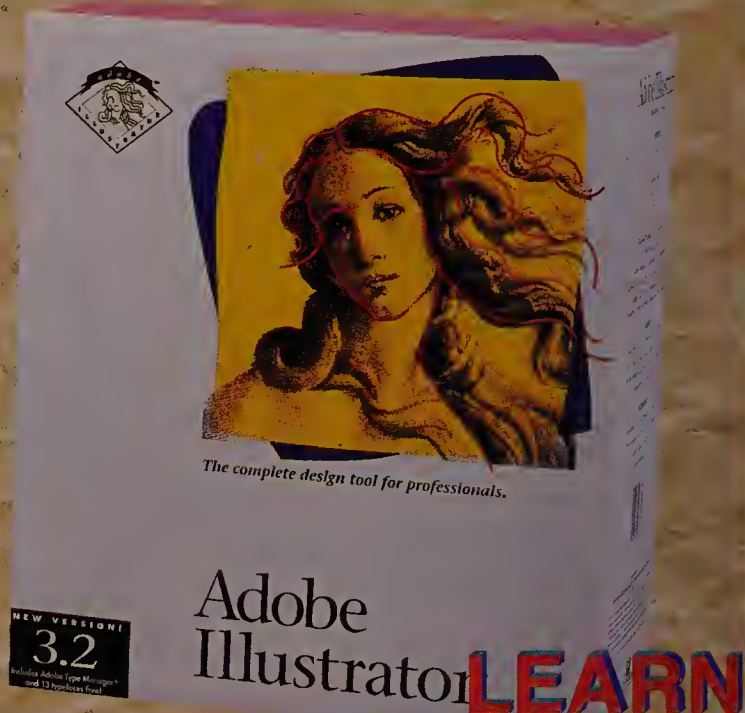
Start by scanning in an existing image, then outline it in seconds with Adobe Illustrator's powerful autotrace tool. Or draw from scratch with the pen or freehand tools—it's as simple as moving your mouse.

Integration and complete control

Now you're ready to integrate text into your artwork. Enter your text directly on-screen or import it from a word-processing program. Adobe Illustrator gives you precise control over kerning, tracking and word and letter spacing. You can even wrap type around a shape and see your alterations on the screen as you work, or flow text from column to column. Add unlimited numbers of characters and styles from any PostScript language Type 1 font, including the entire Adobe Type Library.

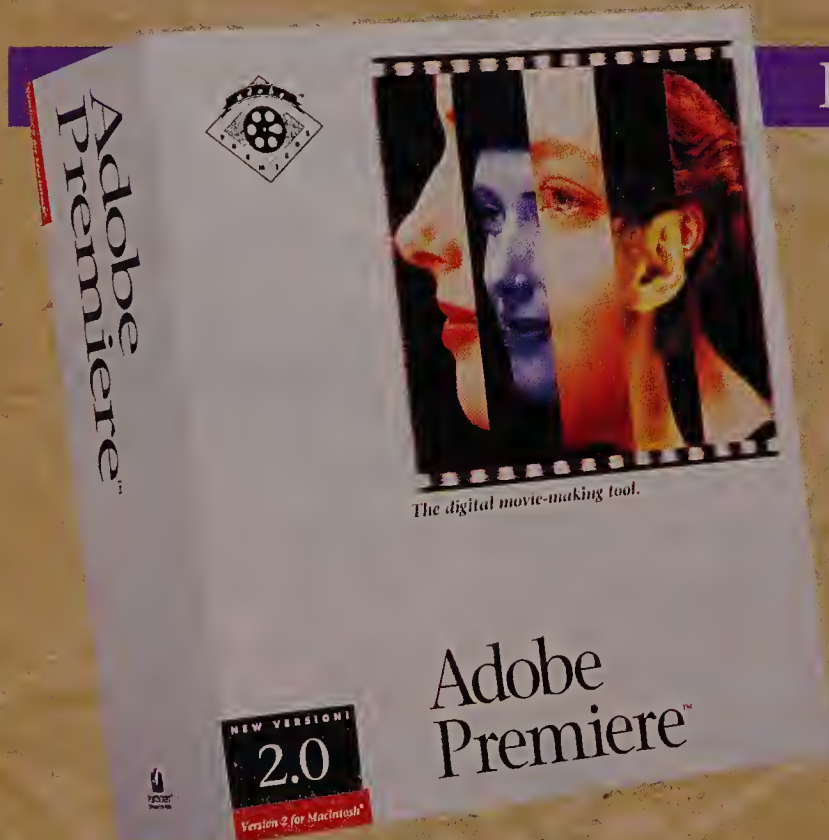
Just the Beginning

What has been described here is just the beginning. In fact, Adobe has added so many features to Illustrator that projects ranging from single-page ads to brochures and packages can be completed entirely in Adobe Illustrator 3.2—all the way through color separations. But the best way to discover the depth and elegance of Adobe Illustrator is to give it a try.



Adobe Illustrator 3.2 now ships with the critically acclaimed Adobe Type Manager, the font utility that smooths jagged edges—no more 24-point headlines that look like brick piles!

Illustrator!
Personal Training
System Tutorials—
Only
\$48
PERSONAL
TRAINING
SYSTEMS



Edit Movies Easily With Premiere!

Adobe Premiere 2.0 Upgrade

\$148

Making a movie with Adobe Premiere is as simple as gathering your clips and arranging them in the order you want them to play. To begin, save your video footage in QuickTime format. Then import it with your other visual and audio files into Adobe Premiere. Utilizes plug-in filters, including those for Photoshop. The new version 2.0 lets you make videotapes on your Mac or export an edit decision list to professional production equipment. Set your imagination free with extensive motion controls, twice as many special effects and filters, improved integration with Adobe Photoshop, direct importing of Illustrator files and much, much more. Improved QuickTime support includes more output options and built-in movie capture that's compatible with any QuickTime digitizing board. Adobe #05702 ✓✓

#04670 Adobe Premiere 2.0 Full Version \$452

Everything you need in one easy-to-use package.

- Intuitive user interface displays video clips in "filmstrip" style
- Multiple windows provide rapid access to any editing function
- Animated icons simplify selection of digital effects
- Video windows enable quick preview of source material, digital effects and assembled video
- Timeline display with variable zoom-in capabilities' single-frame viewing capability
- Push-button controls for stop, rewind, play, fast forward, record and single-stop

Join the QuickTime Revolution

Adobe Premiere, combined with Apple's QuickTime extensions, fulfills the promise of true media integration by delivering the power of digital movies at an affordable price, for a variety of uses:

- Training and education
- Creative development
- Home entertainment
- Video production
- Business presentations
- Merchandising
- Video databases

ADOBE



EDUCATIONAL & INSTITUTIONAL P.O.s ACCEPTED



\$498 Multi-Ad Creator 3.0

Multi-Ad Creator is designed for fast ad layout and precise typographic control of single-page, art-inclusive documents created by newspapers, ad agencies, graphic designers, retailers, Yellow Page advertisers and others. The program's ad makeup capabilities include free rotation of grouped graphics and text, copy fitting, suggested layouts, advanced object drawing and manipulations, controlled duplication of objects, customizable ad layout environments, high-resolution PICT borders and more. Multi-Ad Services, Inc. #04774

EPS Exchange 2.0



\$88

EPS Exchange

EPS Exchange™ 2.0 is an exciting add-on utility which extends the functionality of Aldus FreeHand® 3 by providing the ability to open, as well as generate Adobe Illustrator® 3

and Adobe Illustrator 88® files. You can also export your FreeHand documents for use in Adobe Photoshop™, LetraStudio™ or other programs which support these file formats! Altsys #05036

Infini-D 3D Modeler/ Animator/Renderer

\$646

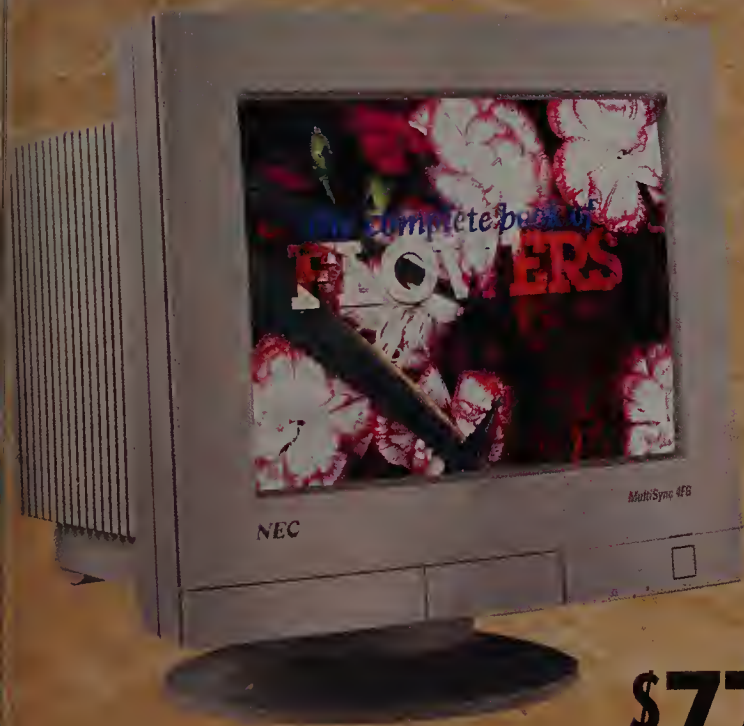
Communicate and sell your ideas with stunning 3D graphics and animations—at a cost that will keep you ahead of the competition. Infini-D is a fully-integrated 3D modeling, rendering and animation package for the Macintosh which allows you to generate photo-realistic images and animations with the easy-to-use interface you've come to expect from your Mac.

Specular International #00815

#05648 Back Burner \$346



Realize Your True Potential with NEC Monitors & Display Cards



\$778

MultiSync 4FG

Completely redesigned from the inside out, the new MultiSync FG monitors give your Mac brighter, sharper, more accurate images. The 4FG, 5FG and 6FG monitors feature the AccuColor Control System which provides unprecedented color accuracy, nothing short of dazzling. Packed with state-of-the-art extras like FullScan capabilities for 36% more screen display.

NEC #07143

#07144 MultiSync 3FGX 15"	\$658
#07399 MultiSync 5FG 17"	\$1398
#07182 MultiSync 6FG 21"	\$2464



\$1598

Color Display Interface Card: 24-Bit Color

Boost your display productivity, increase your resolution and accelerate your graphics performance with a MacFG Color Display Interface Card. They complement the entire MultiSync FG monitor line and are offered in 8-bit and 24-bit models with QuickDraw acceleration. MacFG cards give you multiple display modes to choose from, including 72dpi WYSIWYG mode, condensed modes and expanded modes. Select the display mode that best fits the application you are using. Switching display modes is as easy as pointing and clicking, without a system reboot. The MacFG 8X and 24X Color Display Interface Cards support the entire Macintosh II family and the new Mac Quadra 700 and 900 systems. NEC #04985

#00578 NEC 8-Bit Interface Card \$798

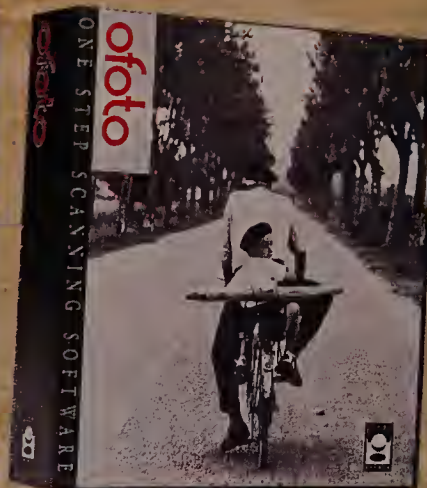
Don't Retype—Scan It!

\$374

WordScan Plus for the Mac

WordScan Plus is one of the most sophisticated OCR systems you can purchase for your Macintosh. It recognizes virtually all business fonts and page layouts and it's capable of capturing everything from bold, italic and underlined fonts to tables, lists and multiple columns. Calera Recognition Systems #04412

- Pop-Up Verifier displays an enlarged original image of any questionable word or character for effortless on-screen proofing.
- Multi-Zone Templates allow you to choose up to 100 specific text or image regions per page.
- AutoClipping automatically finds and clips images and saves them as PICT or TIFF files.
- Style Sheets automatically reformat a document by overriding the existing layout with a new one.



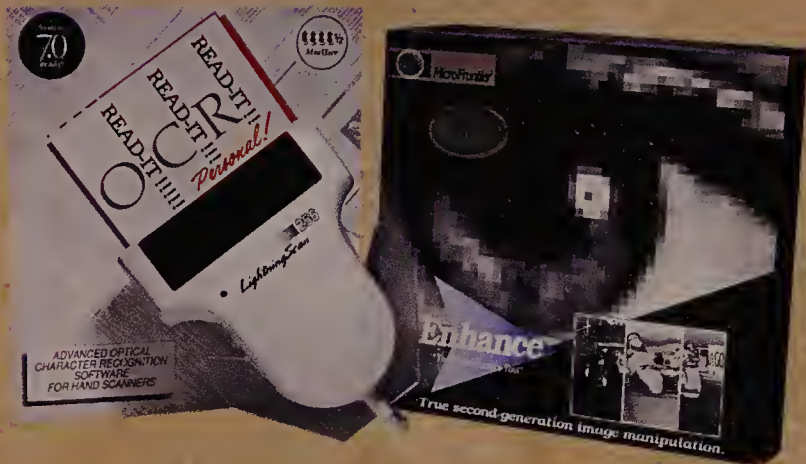
\$278 Ofoto

Now professional-quality gray scale scanning is just a click away. With Autoscan, Ofoto reduces the time-consuming process of scanning, rescanning and editing into one simple step, giving you a crisp, accurate reproduction of your original image on the very first scan, and leaving you more time to exercise your creativity. Light Source #00657

UMAX UC630 Scanner with Photoshop

\$1398

State-of-the-art resolution and sharp, brilliant color, that's what the UMAX UC630 offers. It merges art with 600dpi high-resolution technology, so your pictures, photos and graphics can be reproduced on the screen with remarkable accuracy. The UC630 recognizes up to 16.8 million colors. And it's fast. With its average scanning time of 147 seconds, it's one of the fastest in the industry. It also features: an I/O buffer, image scanning modes, modular design and built-in SCSI interface. UMAX Technologies #00599 (Cover not included)



LightningScan Pro 256

\$488

Each quality LightningScan scanner includes ThunderWorks image editing software, the SnapGuide straight scanning system, and READ-IT OCR (a \$295 value). LightningScan Pro 256 is your best choice for high-quality graphics. It's the only hand scanner with 256-level hardware gray scale. Includes Enhance (a \$375 value) for professional image editing. Thunderware #00520

#02212 LightningScan 400 \$358

An excellent choice for all your general scanning needs. Rated the Best hand-held scanner by MacUser and MacWorld.

#00519 LightningScan Compact \$252

Have a Classic, SE/30 or SE/FDHD? LightningScan Compact shares the disk port to make it more affordable and portable. Same image quality as LightningScan 400.



\$574

CIS Color Access

With CIS•ColorAccess, making your own quality color separations on your Mac is finally within your grasp. CIS•ColorAccess increases your creative control by taking the guess work out of four-color separations, giving

you predictable commercial-quality results. ColorAccess has an elegant graphical user interface that makes it easy to use. Using the same skills you already use to mark up color proofs, you have access to the controls that have been used by drum scanner operators for years. And ColorAccess includes built-in productivity features not previously available on the Macintosh. Like background and batch processing, job templates, selective color correction and unsharp masking tools that make images jump off the page. All of these features help you produce superior work on schedule. ColorAccess saves you time and money, because you get your proofs right the first time. Color Imaging Systems #05576

MAJOR CREDIT CARDS ACCEPTED

ScanMan Model 32 Hand-Held Gray Scale Scanner

This latest version of one of the leading scanners for the Macintosh features streamlined hardware and powerful gray scale scanning and editing software. Capture images and words easily with ScanMan Model 32, then use them in ALL your applications, even HyperCard and O.C.R.

Advanced editing power:

32 gray color palette, brightness and contrast controls, resize, rotate, crop.

Adjustable parameters:

Set the scanning resolution from 100 to true 400dpi. You pick the line art and photo settings.

Full-page scanning:

It's easy to merge multiple scans into aligned full-page images.

Superior image quality:

32 gray scale software is included. The sophisticated halftone capability and output controls let you achieve optimal image quality on any screen or printer.

Great hardware design:

Advanced design gives you straight edge, half page scanning width, scanning speed indicator light, extra large scanner window.



ScanMan Model 32 with Digital Darkroom

\$295

Team your ScanMan Model 32 up with Digital Darkroom from Aldus, and you'll have the power to change your scanned images to fit your needs. Digital Darkroom is gray-scale image processing software for retouching, enhancing, composing and modifying scanned photographs and other bitmapped graphics on the Macintosh. Digital Darkroom offers desktop publishers, photographers and graphic artists the software solution to their image processing needs. Logitech #02561

Powerful tools:

User-defined 1- and 8-bit brushes with interactive brush control, including a scratch pad to test painting effects.

Layout environment:

An enhanced layout environment including custom rulers, full-document crosshairs and a cursor coordinates palette.

Power palettes:

Tear-away, collapsible palettes designed to simplify the main tool palette and conserve on-screen workspace.

Image, scanner and printer calibration:

Optimize image acquisition and output quality by calibrating for individual devices.



ScanMan Model 32 with CatchWord Pro

\$378

Team your new ScanMan up with CatchWord Pro intelligent character recognition software and you can capture any printed text. It automatically transforms text scanned with ScanMan into ASCII format for use in all your applications. Add CatchWord Pro to your system, and you'll never have to re-copy, cut and paste or re-key data again!

Logitech #00670 1/2

Superior compatibility:

Use text in desktop publishing, word processing, database and other applications.

Maximum convenience:

Pull-down menus and online help make CatchWord Pro very easy to use.

Flexible:

Scan text horizontally or vertically, in columns or full page mode (8-1/2x11, A4, etc.), or import text scanned with other scanners.

Get started right away:

CatchWord Pro uses omnifont technology, so it recognizes almost any standard font with no training from you.

Aldus IntelliDraw

\$194

**NEW
PRODUCT**

Aldus IntelliDraw helps you turn "what if..." into reality

New from Aldus, IntelliDraw is an exciting new type of drawing program that gives you an easy new way to visually experiment, refine and draw your ideas. Innovative smart tools link graphics in your drawing so they respond to changes automatically, making IntelliDraw one of the fastest ways to create dynamic drawings. You'll create visual what-if scenarios with features like intelligent clip art & templates, automatic symmetrical objects and dimension lines. You also get auto-alignment, shape blending, arrows & dashes, powerful text handling capabilities, unlimited layers, color gradients, easy object animation, slide show mode, standard draw tools and more. You can even share files seamlessly between Mac & Windows versions! Aldus #05481 ✓

Use IntelliDraw for:

- | | |
|---------------------------------|---|
| • Business Plans and Reports | • Space and Floor Plans |
| • Product-Concept Proposals | • Easy Animations |
| • Sales Reports | • Forms and Flyers |
| • Presentations | • Charts and Graphs |
| • Market Trends and Projections | • Logos |
| • Scientific Documents | • Maps |
| • Technical Illustrations | • Any Illustration Requiring Speed, Flexibility and Precision |
| • Medical Diagrams | |
| • Architectural Renderings | |

Good-bye to the Platform Barrier

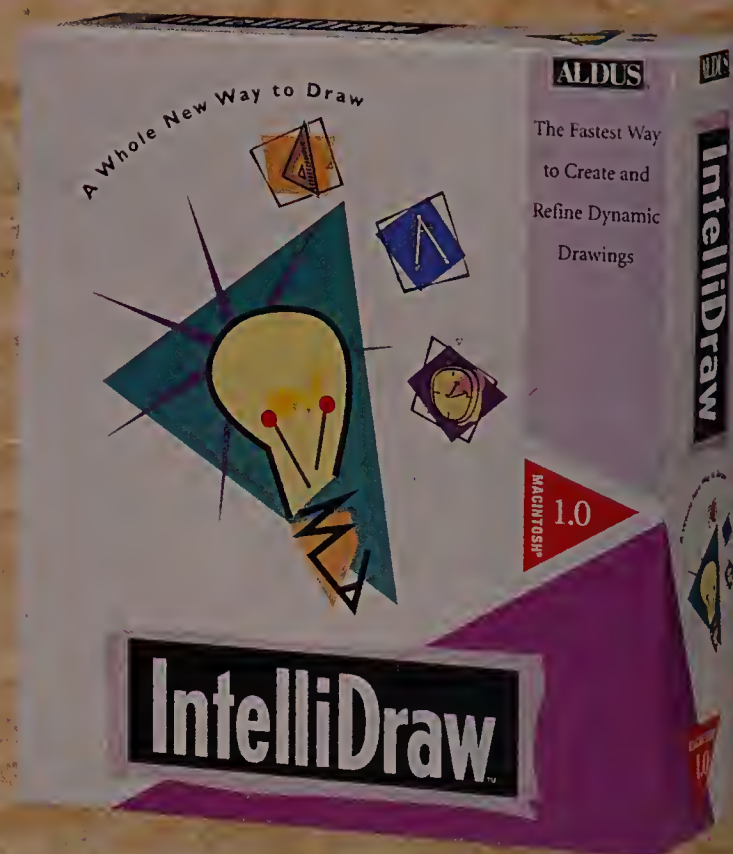
IntelliDraw provides intelligent drawing capabilities to help you work faster and smarter. And "seamless" file sharing between Macintosh and Windows means you can work on, browse through or present your IntelliDraw documents in the environment that's available and convenient. IntelliDraw is the intelligent way to draw. "IntelliDraw rates as a very smart buy." MacWeek.

Making Hard Things Easy

IntelliDraw's advanced technology is all "behind the scenes." What you see when you use the program is a familiar environment—the tools and features work together so naturally, you'll be amazed at how easily and directly you can accomplish one-difficult drawing tasks.

Intelligent Tools For Brilliant Solutions

More than simple shapes on the page, objects in IntelliDraw become "aware" of each other when you define lasting relationships between them. It's easy, using the specialized tools and features: connect objects, align them, distribute them. Then you can experiment or make changes, and they'll behave the way you want. That's Intelligent drawing.



Draw Intelligently with Aldus IntelliDraw

Key Features

- Complete set of standard drawing tools
- "Smart" graphics objects
- Full text capabilities
- Automatic assistance with aligning, sizing and orienting objects
- Create "Symbols" with clones of any graphic
- Symmetricon and Connecticon tools
- Intelligent templates and clip art
- "Sticky" connectors
- Dimension lines
- Cross-platform capabilities
- Powerful shape editing

Benefits

- Perform all draw tasks in a familiar environment
- Easily link elements in your document so that all adjust themselves when you change one
- Flexible text options for labels, organization and flow charts, layout and labeled diagrams
- Create accurate drawings quickly. Alignment and spacing can be automatically maintained
- Edit one master and all clones change automatically (even clip art and bitmaps)
- Quickly produce symmetric shapes and connect new shapes to existing objects
- Use them intact or as a starting point—supplied graphics and templates have pre-defined relationships built-in to save you time.
- Lines stretch, rotate or remain rigid to keep objects connected. Create interactive, dynamic drawings
- Quickly create dimensioned drawings like space plans, technical illustrations, "what if" scenarios
- "Seamless" file sharing between Macintosh and Microsoft Windows
- Create complex shapes faster than any other method. True cutaway, see-through "holes"



FAX YOUR ORDER ANYTIME: 1-206-881-3421



Azimuth 2.1

\$298

Azimuth provides the only non-clip art world-mapping program for the Macintosh. Azimuth 2.1, unlike other clip art mapping programs, lets the graphic artist, cartographer or educator produce dynamic maps of the world or any portion of it from any distance or angle in nine mapping

projections. Azimuth 2.1 functions as

two programs in one: a mapping program that plots mapping data in latitude/longitude according to user specifications

and an illustration program that functions in inches or centimeters, allowing enhancement of the base map without time-consuming redraws. You can even

change scale while text, symbols and line weights remain constant. Comes with

fill patterns (32 are editable). Maps may be saved as PICT or EPS files and

imported into any program that reads PICT or EPS. Requires a Mac Plus or larger machine and 1MB of RAM. Graphsoft #05962

Save Money with Generation Systems Monitors

14" Color Display \$498

Not only is the Generation Systems 14" Color Display priced far less than Apple's standard 12" monitor, it also offers 56% more work space. It can be used with any Mac model fitted with an appropriate video card, and is specifically designed for the LC, IIsi, IICI and Quadras. Generation Systems #04588



15" Full-Page Analog Monitor.....\$498

The Generation Systems 15" Full-Page Analog Monitor provides a crisp monochrome view of the entire page. It features an anti-glare screen tilt/swivel base, 80dpi, 75Hz refresh rate and 640x870 resolution. Works with the internal video of the IIsi, IICI and Quadra in full gray scale. Generation Systems #05287

#05401 15" Full-Page Analog Monitor with Video Card for SE/30 \$698

#05402 15" Full-Page Analog Monitor with Video Card for Classic \$698

#05403 15" Full-Page Analog Monitor with Video Card for LC \$698

#05404 15" Full-Page Analog Monitor with Video Card for SE \$698

#05405 15" Full-Page Analog Monitor with Video Card for MacII \$698

Coming Soon! Design Your Own Railroad

Design Your Own Home:

Interiors

Interiors makes it easy to plan the decor of your home or office. Use the drawing tools and supplied patterns to bring your interiors to life! View the room from the top or from four different automatic side-view perspectives.

Abracadata #03611

1 1/2

Landscape

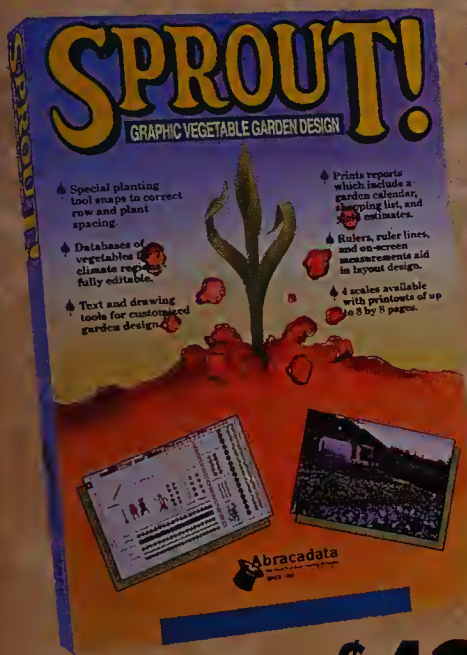
Landscape gives you a variety of drawing tools and patterns to help you plan. Use the built-in object library or draw your own trees, shrubs, etc. then automatically see your design from four different side-view perspectives. Prints plans and plant shopping lists.

Abracadata #03610

Architecture

With Architecture you'll draw your own floor plans, side view building plans and structural details. The program has a unique stud repeater tool which speeds drawing and aids in lumber estimates. The overlay feature allows layering of details such as electrical or plumbing schematics and multiple floors.

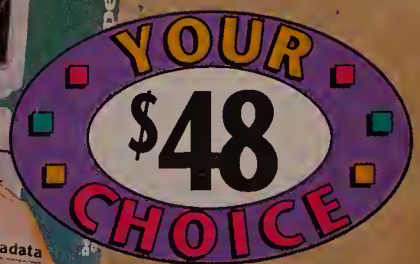
Abracadata #03609



\$42

Sprout!

Sprout! is a complete computer planning tool for vegetable gardeners. With it you can easily produce a graphic, scalable garden plan with correct plant and row spacing. In addition, Sprout! contains a fully editable database of vegetables for 7 climate regions. Print out garden layouts, calendars, shopping lists and reports. Abracadata #05085



Special MacZone Font Offer

Exclusively from the MacZone;
 Four Bitstream TrueType
 Font Bundles all in
 one package for only:

#05918

(Regular Price \$312)

\$97

Font Pack 1

- Bitstream Amerigo
roman-*italic*-bold-*bold italic*
- **STENCIL**™
- **Windsor**
- **American Text**™

Font Pack 2

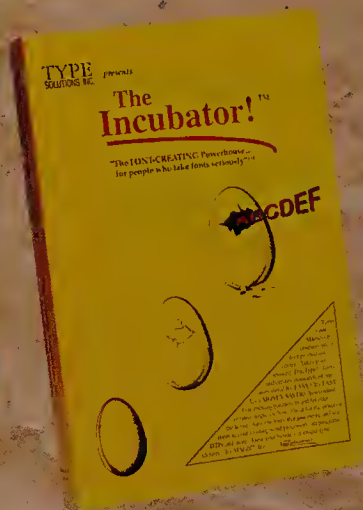
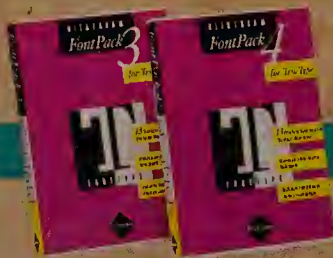
- Bernhard Modern
roman-*italic*-bold-*bold italic*
- **Futura Black**
- **EXOTIC DEMI-BOLD**
- *Embassy*

Font Pack 3

- Zapf Hamanist
roman-*italic*-bold-*bold italic*
- Baskerville
roman-*italic*-bold-*bold italic*
- **Broadway**™
- University Roman
- **Bitstream Cooper Black**
- *Cloister Black*
- *Hobo*

Font Pack 4

- Incised 901
roman-*italic*-**black-compact**
- Goudy Old Style
roman-*italic*-bold-*bold italic*
- **Dom Casual**™
- **Handel Gothic**™
- *Kaufmann Bold*
- **Blippo**™ **Black**
- **P.T. Barnum**™



\$98

The Incubator!

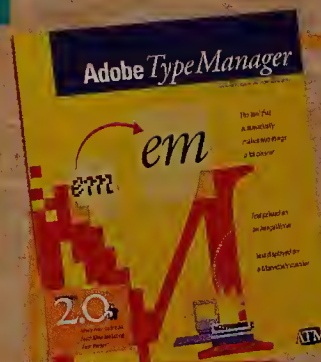
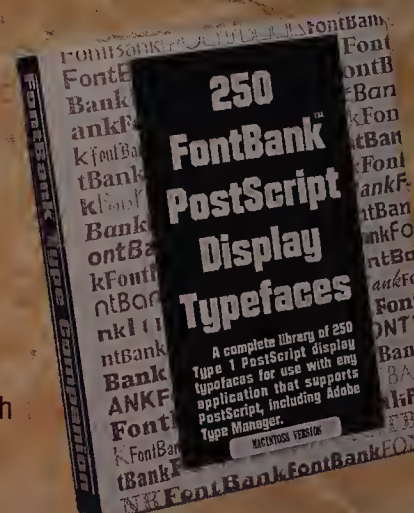
The Incubator! by Type Solutions, Inc. allows you to create fully hinted TrueType fonts quickly and easily from your existing TrueType library. There are four powerful typographical controls—color (light or dark), width, contrast (thick and thin strokes) and slant (right or left). These can be used separately or in tandem to create high quality, unique TrueType typefaces for use in any application. Type Solutions #00490 ✓✓



FontBank Type Companion

Great display typefaces for only 40¢ each! This collection of 250 Type 1 PostScript display typefaces handles most of your needs. Includes traditional, novelty and many other faces! Includes printer and screen fonts. Compatible with all Macintosh programs that support PostScript. FontBank #04986 ✓

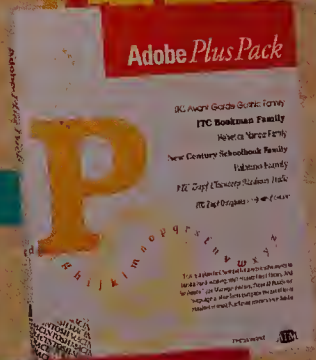
\$94



Type Manager 2.0

Now, you can adjust kerning and leading on-screen. ATM solves the problems of jagged edges—no more 24-point headlines that look like brick piles. Adobe #03497 ✓

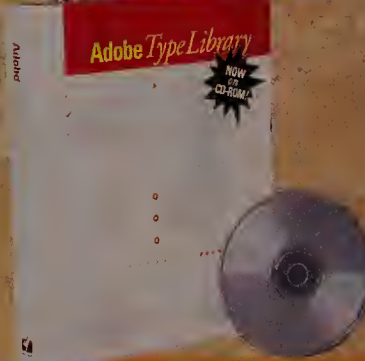
\$58



Plus Pack For Type Manager 2.0

With Plus Pack you get 22 high-quality typefaces ideal for all your DTP projects. Adobe #02870

\$108



Type On Call CD-ROM

Adobe has just put software for the world's largest selection of high-quality digital typefaces on a single compact disc. Just pick up the phone and tell Adobe which packages or single typefaces you need. Adobe #03950 ✓

\$58



ONE-STOP SOURCE FOR ALL YOUR MAC NEED

3G GRAPHICS
IMAGES WITH
Impact!

Accents & Borders 2 NEW!



Accents & Borders 2\$68

Introducing part two of the award-winning Accents & Borders series. Contains frames, borders, tiles, ornaments, symbols and an entire section devoted to holidays! Education, recycling, animals, food and entertainment are just a few of the subjects represented here. Every image is opaque and can be integrated with shapes and type.
3G Graphics #05601

People 1\$94

Select from over 230 graphics of superbly drawn men and women of all races. The categories include: business (some humorous), industry (with 55 occupational symbols), healthcare, fitness, sports and arts & entertainment.
3G Graphics #00421

Accents & Borders 1\$64

Accents & Borders 1 is an essential addition to any clip art library. It gives you hundreds of high-quality borders, designer sets, labels, symbols of food, holidays, people and more. You'll use this one often.
3G Graphics #03192

Graphics & Symbols 1.....\$49

With Graphics & Symbols 1 you get an excellent selection of light-hearted, crisp images in a wide range of styles and subjects including: people, cartoons, food, travel, symbols and frames. 3G Graphics #01617

Business 1\$64

Communicate effectively and powerfully with this extensive collection tailored specifically for business use. The Business 1 collection includes detailed art of computers, occupational and public symbols, people, phrases and more.
3G Graphics #02085



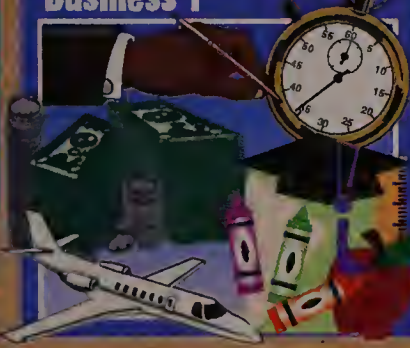
Accents & Borders 1



Graphics & Symbols 1



Business 1



Over 300 Complete Borders!

\$67

Cliptures Volume 5 • Borders

NEW PRODUCT

Turns dull-looking layouts into eye-catching designs. Includes a huge variety of decorative styles like Art Deco, Art Nouveau, Calligraphic, Certificate, Contemporary, Victorian and more! Ready to use and easy to work with. Each great-looking design is a complete EPS border! Dream Maker Software #05600

Uncle Milty's ClipArt Collection **\$34**

Use Uncle Milty's Clip Art and your newsletters, ads, fliers, invitations, brochures, memos, etc. will be more effective and inviting. It includes 100 high-resolution 300dpi illustrations on three disks. All illustrations have been meticulously hand-drawn by Uncle Milty and friends. Use them with PageMaker®, QuarkXPress® and other popular page layout programs that import compressed TIFF. Now compatible with MS Word 5.0®. Digital fun for kids and adults!
Uncle Milty #04273



Newsletter Cartoons **\$34**

ClickArt Newsletter Cartoons includes 100 fun and imaginative cartoons by award-winning artist Phil Frank. This an ideal collection for enhancing reports, invitations, newsletters, memos, letters, fliers and many other types of publications. The image categories include: politics, travel, education, announcements, ecology, money and leisure.
T/Maker #04900



Volume 1: **\$67** Business Images

Volume 1: Business Images gives you 148 business illustrations, including a wide selection of male and female executives and a variety of tantalizing business cartoons, graphics and symbols.
Dream Maker #03998 7



Volume 2: **\$67** Business Images 2

Volume 2: Business Images gives you another 206 powerful business illustrations of men and women at work, plus people silhouettes, business cartoons, aircraft, money, telephones and lots of computers.
Dream Maker #03999 7



Volume 3: **\$67** Sports

Volume 3: Sports puts 228 fantastic sports images at your fingertips. Includes lots of men and women athletes and a rich collection of other outstanding sports graphics, symbols, icons and more. Dream Maker #04000 7

Volume 4: **\$67** World Flags

Volume 4: World Flags contains exquisitely detailed national and civil flag illustrations from all the independent and dependent countries of the world, plus various international, organization and code flags.
Dream Maker #04282 7



Quality Map Graphics for your Designs and Presentations

MapArt Vol.1: **\$89** USA & International

A comprehensive set of 4 world maps, 14 world regions and continents, and 29 countries with states, provinces, country names, major cities and water bodies: Australia, Austria, BeNeLux, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, India, Ireland, Israel, Italy, Japan, Mexico, New Zealand, Norway, Portugal, Russia, S. Africa, Spain, Sweden, Switzerland, Ukraine, UK & USA.

MapArt Vol. 1 EPS Format

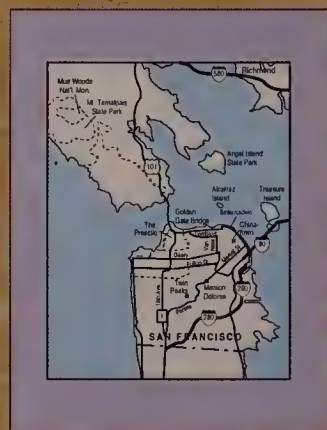
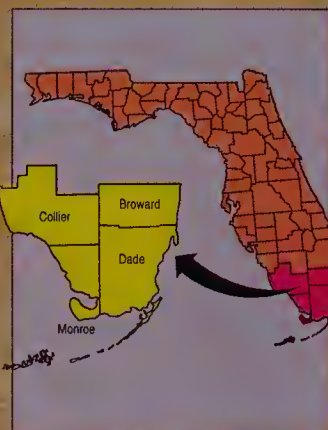
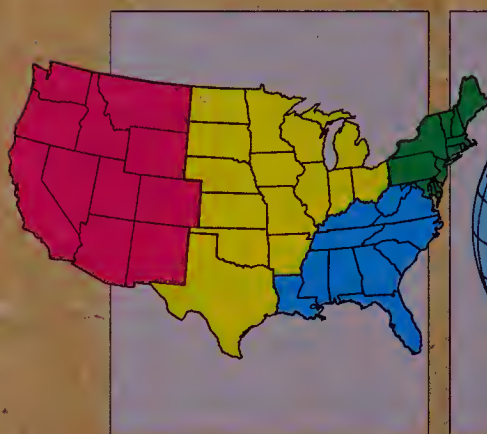
MapArt Vol. 1 PICT Format

MapArt Vol. 1 CD-ROM

MapArt Vol. 2: **\$52** US States by County

Maps of the 50 US States showing all 3000+ counties. Each county is drawn as a separate object so you can customize the maps with Illustrator or FreeHand. Great for showing sales territories, creating inset maps or custom regions. Includes county names.

Requires: Any program that imports EPS images.



Import maps directly into a DTP or presentation program, or use your favorite graphics program to create customized maps! Individual features drawn as separate objects, so you can select objects, add fill patterns, drop shadows, graphics, text or numbers. MicroMaps Software

MapArt Vol. 3: **\$24** Global Perspectives

Eighteen maps of the globe, each one centered over a different area of the earth. Drop one of these images into your designs to add graphic impact! Features country boundaries and latitude/longitude lines.

Requires: Any program that imports EPS images.

MapArt Vol.4: **\$14** Metro Areas - USA

Maps of 25 US metro areas with major roads, coastlines, city boundaries, parks, airports, universities & stadiums. Includes:

Atlanta, Boston, Chicago, Cleveland, Columbus, Dallas/Ft. Worth, Denver, Detroit, Honolulu, Houston, Indianapolis, Kansas City, LA, Miami, Minneapolis, New Orleans, NY, Philadelphia, Phoenix, Pittsburgh, San Diego, San Francisco, Seattle, St. Louis, Washington, DC.

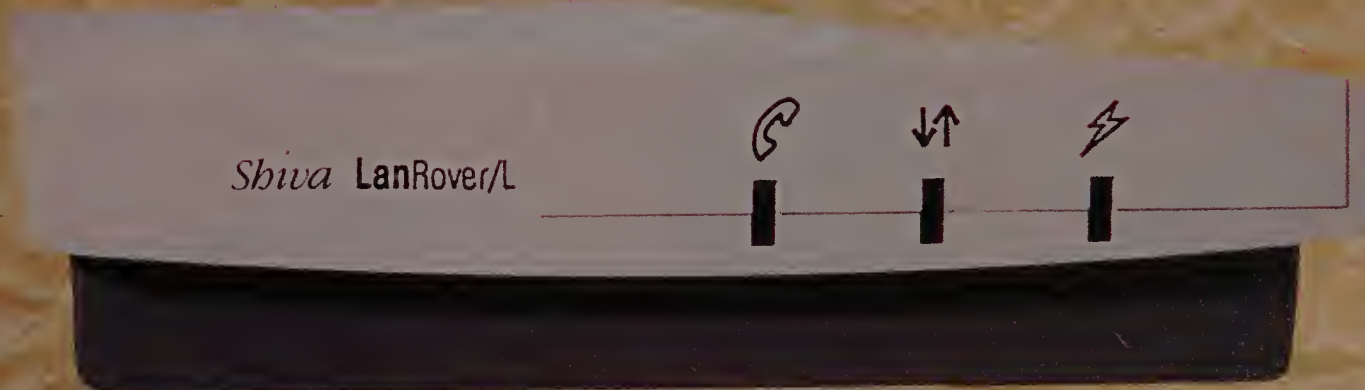
Requires: Any program that imports EPS images.

#05645 KidMaps \$14



ORDER BY 2 A.M. WEEKDAYS FOR NEXT DAY DELIVERY

Network More Effectively with Shiva



\$598

LanRover™/L

LanRover/L is a stand-alone communications server for Apple Computer's AppleTalk Remote Access. It allows PowerBook users and users of desktop Macintoshes running AppleTalk Remote Access software to call and connect to an AppleTalk network over standard telephone lines. Once dialed into LanRover/L, you can take advantage of network services—for example, e-mail, databases and groupware—as if you were directly connected to the network. LanRover/L also provides network Macintoshes with a shared modem for dial-out to remote information services, bulletin boards or hosts. LanRover/L offers network administrators several unique advantages for managing dial-in and dial-out. The package includes Shiva Net Manager which provides easy centralized management and security features. LanRover/L is a reliable, dedicated device that you can install in a location where there is no risk of accidental shut-off or tampering.

Shiva #05128 ✓✓



\$338

NetModem V2400

NetModem V2400 is a communications device designed to meet two LAN communications needs. It allows remote Macintosh users to dial in and have access to network services, and it lets Macintoshes dial out to remote information services or hosts. NetModem V2400 consists of a Hayes-compatible modem with V.22 and V.22bis support and a built-in LocalTalk interface. NetModem V2400 supports Macintosh computers and PCs on LocalTalk networks. It connects directly to the network without dedicated computers and can be shared by an unlimited number of users, one user at a time. Shiva #01615 ✓✓

NetModem V.32 9600

The NetModem V.32 is a 9600bps modem that is designed to be shared over AppleTalk. The NetModem also includes dial-in network access software which allows a remote Mac or PC to dial into the network and use electronic mail, printers and other network resources. Shiva #03251 ✓

\$1038



Check Out These Shiva Solutions

#01405 Shiva NetBridge	✓\$408
#01406 Shiva NetSerial	✓\$274
#02542 Shiva TeleBridge	✓\$408
#02985 Shiva EtherGate	✓\$1294
#04038 Shiva Fast Path V (thick/thin)	✓\$1886
#04129 Shiva NetModem/E 10Base-T	✓\$1484
#04491 Shiva NetModem/E Thin	✓\$1484
#04758 Shiva NetModem/E Thick	✓\$1484
#04759 Shiva NetModem/E AUI	✓\$1484

Get Your Network Together With Complete Ethernet and LocalTalk Solutions From Farallon

Introducing three new products designed to integrate and connect Macintosh networks to Ethernet and enterprise networks.



\$288

10T Starlet 9

Finally, an affordable 10Base-T solution for connecting workgroups or expanding intelligent hubs. Use the 9-port Starlet to quickly create a 10Base-T workgroup network. Or connect it to a 10Base-T port on an intelligent hub (such as the StarController EN) to add more nodes and one BNC port to connect multiple Starlet mini-hubs along a thinnet backbone. It also features LEDs for link status (per port), traffic (per port) power and collisions. Farallon #05693

\$2348

StarRouter

Now LocalTalk users can have full access to Ethernet. The StarRouter combines AppleTalk routing and a TCP/IP gateway with LocalTalk repeating. The StarRouter hub's high-performance AppleTalk routing includes translation between AppleTalk Phase 1 and Phase 2. Its AppleTalk-TCP/IP gateway gives LocalTalk users access to UNIX hosts, PCs and other resources on Ethernet. The StarRouter also features a 12-port LocalTalk repeater built on patented StarController technology. LocalTalk nodes are connected with unshielded twisted-pair cabling (UTP) using the PhoneNET structured cabling system. Farallon #05939



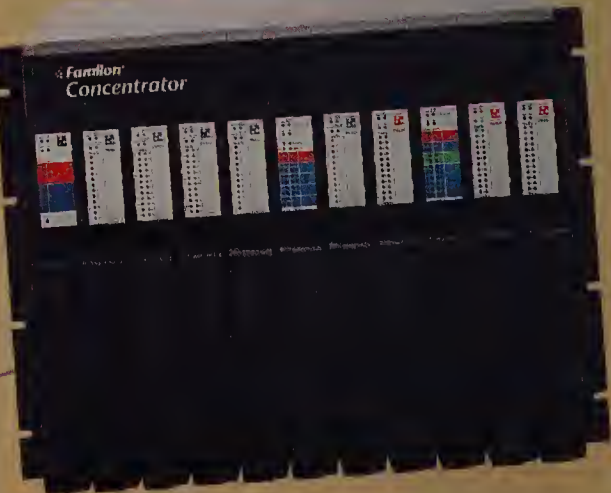
NEW PRODUCT

NEW PRODUCT

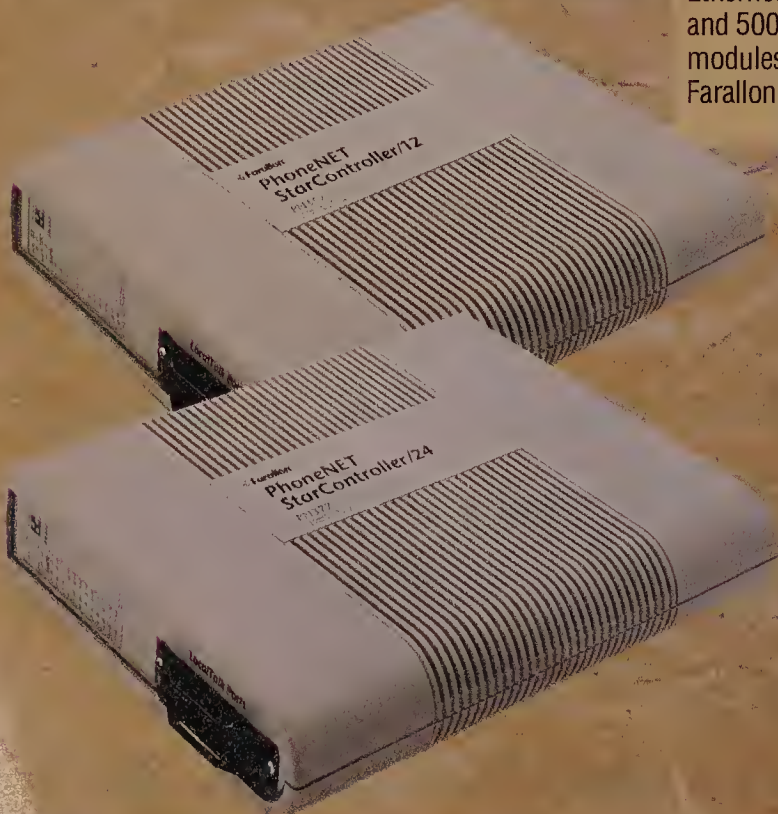
Concentrator

\$2128

The Farallon multiple-bus Concentrator integrates Ethernet, LocalTalk and routing to create larger, more reliable Macintosh networks. The Concentrator can accommodate up to ten Farallon networking hubs and routers, creating up to ten independent star networks. Existing Farallon LocalTalk and Ethernet StarController repeating hubs (Series 300 and 500) are easily converted to Concentrator modules. Includes StarCommand software. Farallon #05940



Farallon®



PhoneNET StarController PN 357 12-Port/PN 377 24-Port

The PhoneNET StarController hub amplifies and repeats LocalTalk signals to network devices. Available in 12-port and 24-port models, the StarController permits you to manage multiple StarController hubs over your network. The StarController automatically turns ports off and on to isolate jamming signals; LEDs provide traffic information at a glance. Use StarCommand network management software (included) to control hub settings, gather statistics, test line conditions and record Chooser names by port. StarCommand alerts you to network problems for both Ethernet and LocalTalk StarController hubs. Each StarController package includes StarCommand software, a wall mounting bracket, a management cable, terminating resistors and a power adapter. A PhoneNET StarController wiring kit (sold separately) is also required. Farallon

#04738 PhoneNET StarController PN 357 12-Port \$924
#04739 PhoneNET StarController PN 377 24-Port \$1298

WE SHIP WORLDWIDE- 1-206-883-3088

WORLDWIDE DELIVERY

Choose Farallon: the Better Ethernet Solution

EtherMac Cards

Here's an affordable EtherMac Card for any Mac that has an expansion slot. You can choose from three standard cable types: 10Base-T, thicknet and thinnet. Farallon even makes EtherMac cards that support all three media interfaces on a single board. And those aren't the only extras available; There are EtherMac cards with 64K RAM for servers or A/AUX, and cards with FPU's for math-intensive applications. They're manufactured using surface-mount technology and highly integrated controller chips for maximum performance and reliability.

EtherMac cards support the Macintosh II series (NuBus), IIsi, SE/30, SE and LC. Cards for the Macintosh LC and IIsi are available with the Motorola 68882 math co-processor installed.

EtherMac cards are fully compatible with System 7, and with the Apple Ethernet installer. When installed under System 7, no separate installer disk is required. All EtherMac cards are covered with Farallon's legendary 5-year warranty.



NEW
PRODUCT

Introducing Farallon's Expanded Ethernet Line

\$288

Ether10-T Starlet

Finally, an affordable 10Base-T solution for connecting workgroups or expanding intelligent hubs. Use the

9-port Starlet to quickly create a 10Base-T workgroup network. Or connect it to a 10Base-T port on an

intelligent hub (such as the StarController EN) to add more nodes and one BNC port to connect multiple Starlet mini-hubs along a thinnet backbone. It also features LEDs for link status (per port), traffic (per port) power and collisions. Farallon #05693

NEW
LOWER
PRICE

\$1268

StarController EN

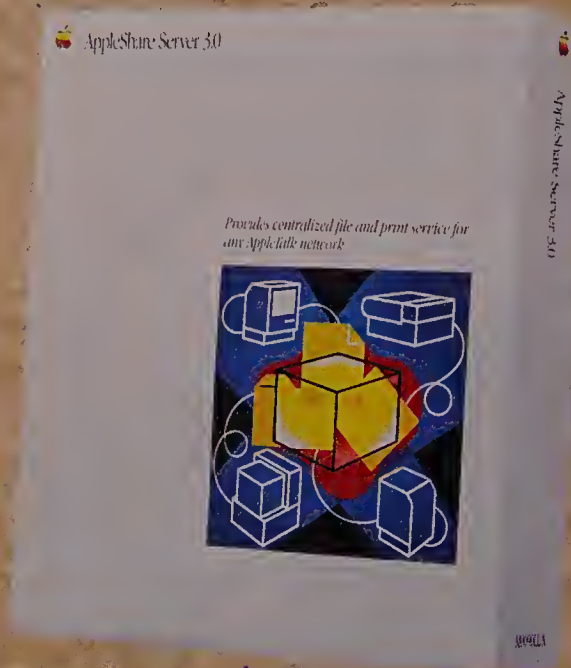
The 12-port StarController EN is an intelligent, concentrator-ready 10Base-T hub that includes powerful

management software. The StarController EN features an additional AUI port, so multiple hubs can be linked along a thinnet backbone. It can also be used as a module in the Farallon Concentrator, for complete integration of LocalTalk, Ethernet and routing. StarCommand management software lets you view traffic information, keep track of where users are and control 10Base-T ports. Farallon #05692

Farallon®

Farallon EtherMac cards provide a choice of Ethernet interfaces for any Macintosh. They're available with connections on-board for up to 3 different media—10 Base-T, ThickNet and ThinNet.

#00676 Farallon EtherMac II-TN	✓	\$158
#00677 Farallon EtherMac II-10T	✓	\$158
#00678 Farallon EtherMac II-C	✓	\$208
#00679 Farallon EtherMac LC-TN	✓	\$158
#00680 Farallon EtherMac LC-TN+FPU	✓	\$248
#00681 Farallon EtherMac LC-10T	✓	\$158
#00682 Farallon EtherMac LC-10T+FPU	✓	\$248
#00683 Farallon EtherMac LC-C	✓	\$208
#00684 Farallon EtherMac LC-C+FPU	✓	\$298
#00685 Farallon EtherMac 30i-TN	✓	\$188
#00686 Farallon EtherMac 30i-TN+FPU	✓	\$278
#00691 Farallon EtherMac 30i-10T	✓	\$188
#00692 Farallon EtherMac 30i-10T+FPU	✓	\$278
#00693 Farallon EtherMac 30i-C	✓	\$238
#00695 Farallon EtherMac 30i-C+FPU	✓	\$328
#00696 Farallon EtherMac SE-C	✓	\$208



\$998

AppleShare Server 3.0

AppleShare Server 3.0 is the premiere file sharing software for the Mac. This new version meets the security, performance and multi-tasking requirements of larger workgroups and departments. It provides access to centralized shared storage for up to 120 concurrent users and queued access for up to five network printers. Apple Computer Corp. #05475



\$374

QuickMail 2.5 (10 User)

With QuickMail 2.5, the days of missed messages, expensive overnight services and "while-you-were-out" slips are all over. It connects Mac and PC users on AppleTalk, NetWare, Banyan, 3Com, LAN Manager and other networks. CE Software #04169

#04169 QuickMail 2.5 (5 User) \$248

#04171 QuickMail 2.5 (50 User) \$1548

Asanté has a Card for Every Mac



10T Hub-8

With the Asanté 10T Hub-8, network managers can connect local area networks with inexpensive twisted-pair telephone wire instead of expensive coaxial cable. Supports the IEEE specifications for 10Base-T Ethernet. Asanté #00404

\$258

#00348 10T Hub-10 \$528



\$164

MacCon+ 30iE

The MacCon+ 30iE is a 32-bit Ethernet card that easily plugs into a Mac IIx or SE/30. This card

includes a PDS pass-thru slot for connecting additional expansion cards, and an FPU socket for adding an optional math co-processor. Like all Asanté products, the MacCon+ 30iE is 100% tested before shipping and is backed by FREE technical support. 5-year warranty. Asanté #00020

#03646 MacCon & 30iET \$164

#00511 MacCon3 Ethernet Card \$218

**NEW!
FOR THE
POWERBOOK**

\$329

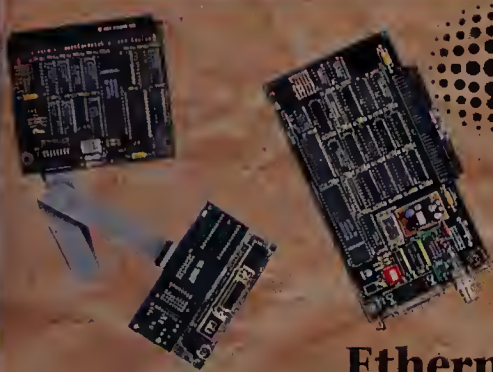
EN/SC PB

The Asanté EN/SC PB is an external SCSI adapter for connecting the new Macintosh PowerBook computers to Ethernet networks. The EN/SC PB includes ports for all three types of Ethernet media—thick, thin and 10Base-T. Asanté #00847



MAJOR CORPORATE P.O.'S ACCEPTED

The Complete Ethernet Solution



Dayna

\$148

Ethernet Adaptor Cards

Based on premium Ethernet controller chips from National Semiconductor, DaynaPORT cards are the fastest in their class. They come with diagnostic software and an easy installer that automatically selects the driver for the Macintosh model and version of system software you are running. Call The Mac Zone for a complete selection of Dayna Ethernet Adaptor Cards. Dayna Communications, Inc. #05903

\$438

EtherPrint Plus

EtherPrint Plus goes beyond the basic EtherPrint capabilities, letting you connect multiple, LocalTalk devices directly to an Ethernet cable system. Not limited to printers EtherPrint Plus supports up to four LocalTalk devices of any sort (except routers). Dayna Communications, Inc. #00321



EtherPrint

EtherPrint offers an easy "plug and print" Ethernet connection for LocalTalk printers, at a much lower cost than a hardware router. Provides direct Ethernet connection for up to four LocalTalk devices of any sort. All models support AppleTalk Phase 1 and 2 protocols over thick, thin and 10Base-T or fiber-optic Ethernet cable systems. Dayna Communications, Inc. #03546

\$348

DaynaPORT SCSI/Link

\$294

DaynaPORT SCSI/Link is a small Ethernet connector box with a compact, portable design, ideal for Macintosh PowerBooks and portables. Both 10Base-T and thin-Ethernet cable systems are supported. Dayna Communications, Inc. #05188

#05189 DaynaPort SCSI/Link T PB \$294
#05190 DaynaPort SCSI/Link 3 PB \$338

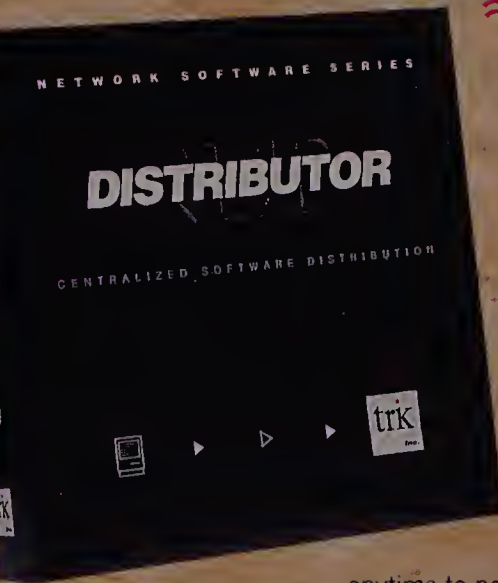
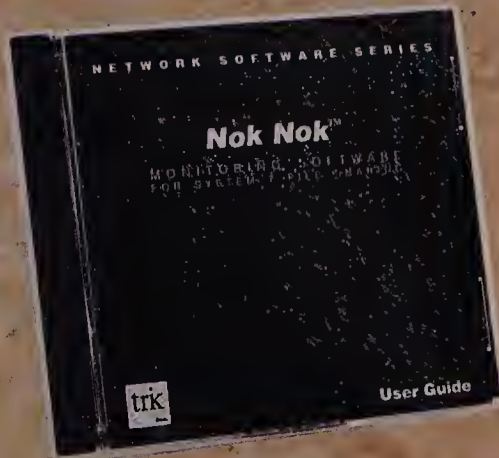
NetMounter

With NetMounter, you can easily access NetWare from your Mac. This innovative utility lets a Macintosh log into any NetWare file server, with no need for NetWare for Macintosh. Once logged in, you can copy files to and from the server, and edit MS-DOS files with Macintosh applications. Dayna Communications, Inc. #05184 (single user)

#05185 NetMounter 5-User \$224
#05186 NetMounter 10-User \$334

Nok Nok \$36

Keep track of who is attempting to connect to your Mac via System 7 file sharing. Nok Nok senses when someone is logging on, reads the user and machine identity and lets you know who it is. Never again will you discover that anonymous "guests" have logged onto your system. Trik #05042



NEW VERSION

\$488

NetDistributor Pro

If you're looking for the ultimate control over all your software updating, then you need to have NetDistributor Pro. It installs software updates, including applications, fonts and desk accessories, anywhere and

anytime to networked Macintoshes across LocalTalk, EtherTalk, TokenTalk and WAN links. Features include powerful if-then-else branching, password security, file compression and remote restart. Trik #05736

#05900 NetDistributor Unlimited User \$914

- Quickly switch between any 3 serial devices with the click of a button
- Works with any Mac-compatible serial device
- Self powered
- Microprocessor controlled
- Plug & play
- Easy to use CDEV
- Select ports on the fly in any application
- Compatible with any Mac

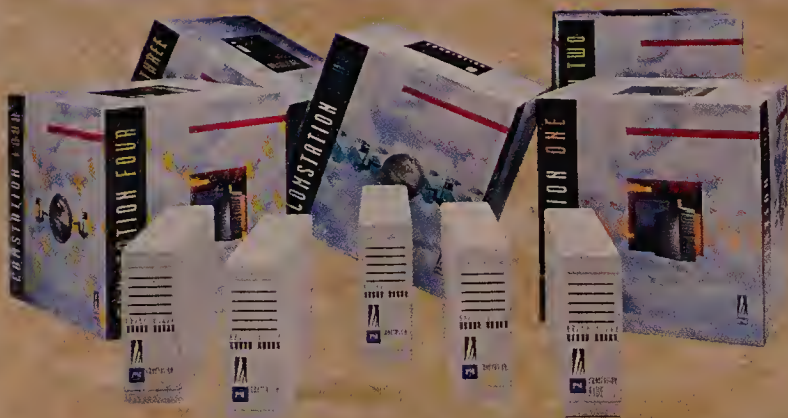


\$128

AXiON Electronic Switch Box

Finally, 3 serial ports for the Apple Macintosh! The AXiON Switch Box is an elegant, yet inexpensive serial port solution. It allows you to maintain 3 additional devices per serial port. You can choose between any port at any time simply by clicking on the appropriate triangle on your desktop. The AXiON Switch automatically remembers the device that you used last. Port 1 is always the default setting whenever the system is reset or turned on, as denoted by the small dot. AXiON #05628

Communicate with Ease!



PSI Comstations

PSI's family of Comstation fax/data modems combine high-speed data transmission with powerful fax capabilities. The five different Comstation models offer a variety of fax/modem solutions to suit the needs of nearly every type of Macintosh user, from the low-cost fax/data Comstation One, to the networkable Comstation Four, to the ultra high-speed V.32bis, fax/data Comstation Five and data-only Comstation Three. Highly intuitive software makes faxing as easy as printing. All PSI Comstations are Hayes and Group III compatible and include cables and fax/data software.

PSI Integration

#05696 Comstn 1: 9600/4800bps s/r fax, 2400bps data	\$164
#05697 Comstn 2: 9600 s/r fax, 2400bps data w/V.42, V.42bis, MNP 2-5 ..	\$274
#05698 Comstn 3: 14,400bps data, w/V.42, V.42bis, MNP 2-5	\$408
#05699 Comstn 4: (Network version of Comstation One)	\$344
#05700 Comstn 5: 14,400 fax/data with V.42, V.42bis, MNP 2-5	\$548



\$238

MicroPhone II Go!

The MicroPhone II Go! package consists of: MicroPhone II communications software, After Dark 2.0, TelePort Fax 24/96, CompuServe & America Online Starter Kits, Spectre action game, MicroPhone II t-shirt and a stylish carrying bag. Software Ventures #05486

PowerPort Internal Fax/Modem

Turn your PowerBook into a mobile office with a PowerPort Fax/Modem. PowerPort is completely portable; no separate battery or power source is required. There are three models available: Gold—14,400bps data, 9600bps fax send, 9600bps fax receive; Silver—9600bps data access, 9600 fax send/receive; Bronze—2400bps data, 9600 fax send, 4800 fax receive. Global Village



#05684 PowerPort/Gold	\$628
#05685 PowerPort/Silver	\$448
#05686 PowerPort/Bronze	\$218



Optima 96 V.32

\$398

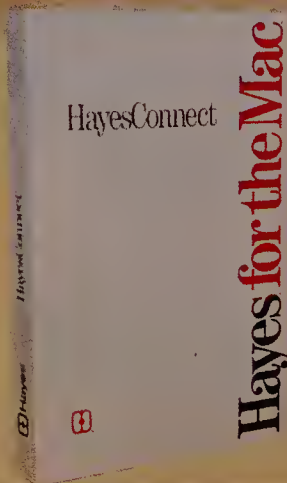
This high-speed modem provides 9600bps information transfer, and it can communicate with other modems of almost any speed. Its Automatic Feature Negotiation offers efficient combination of speed, error-control and data

compression with every use. Connect with information services, bulletin boards and corporate host computers with confidence. Hayes #05307

Optima 24: Special Mac Edition

\$154

Optima 24 delivers high performance at a terrific price. You get 2400, 1200 and 300bps communications, plus V.42/V.42bis, MNP-5 error control, data compression and throughput to 9600bps. Mac-to-modem cable and Smartcom for the Mac (\$49 value) are included, FREE. Hayes #05231



\$88

HayesConnect 3.0

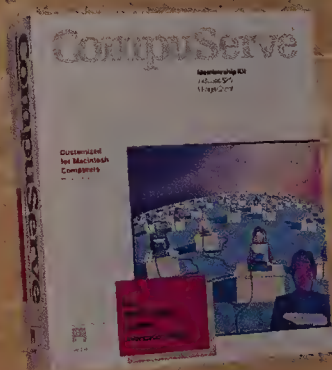
HayesConnect is the software that enables users to share and allocate resources such as modems, plotters and printers. New version 3.0 includes enhanced server features such as device pooling, security, activity logging and Toolbox support. Hayes #05028

CompuServe Macintosh Membership Kit

\$24

Begin exploring the world of CompuServe, the largest on-line interactive database service available. You'll get instant access to more than 400 information and communications databases and much, much more. CompuServe #00213 ✓

#00564 CompuServe Navigator 3.1 ✓ ... \$48



FaxPro II

\$694

With FaxPro II, sending a fax from any workstation is as easy as printing to a Laser Printer! The FaxPro II system combines a specially designed send/receive 9600-baud group III networkable faxmodem with fax software. Cypress Research Corporation #05530

#05683 Cypress Research Phone Pro \$748



INTERNATIONAL ORDERS CALL 1-206-883-3088

Prometheus Home Office

Turn your Mac into a complete communications system! Home Office adds voice capability to a combination data/fax modem to turn your computer into a fully featured answering machine. Plus, with its ability to detect whether incoming calls are fax, voice or data, it also functions as a line switching device. It's like having 4 separate communication products all sharing one phone line! Offered as a complete package with all the necessary software and cables, Home Office is a low-cost solution for all your communication needs. ⑦ ✓



Major Features:

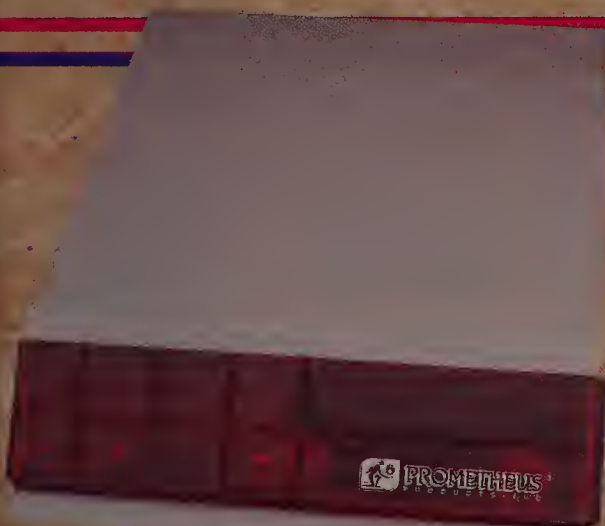
- 2,400bps or 14,400bps data modem versions
- V.42bis/MNP-5 data compression/error correction
- 9600bps send/receive Group III fax
- Voice messaging system

Ultima Home Office with Voice \$488

14,400bps (V.32bis) data modem with V.42bis/MNP-5, 9600bps s/r Group III fax, voice and more. Prometheus #00877 ⑦ ✓

Home Office 24/96 with Voice \$258

2,400bps data modem with V.42bis/MNP-5, 9600 s/r Group III fax, voice and more. Prometheus #00907



ProModem Ultima

14,400bps Modem and 9600bps Send/Receive Fax

The ProModem Ultima is the exciting new modem from Prometheus that provides a low-cost solution for high-speed data transfers and networking applications. The Ultima provides you with the ultimate in 14.4K/9600/4800/1200bps, error correction, data compression and precision fax. With it you'll send/receive Group III faxes ultra fast at 9600bps and you'll transfer data even faster (14.4K). It comes complete with Maxfax, Prometheus' own fax software, a powerful program with many features you won't find in any other fax software.

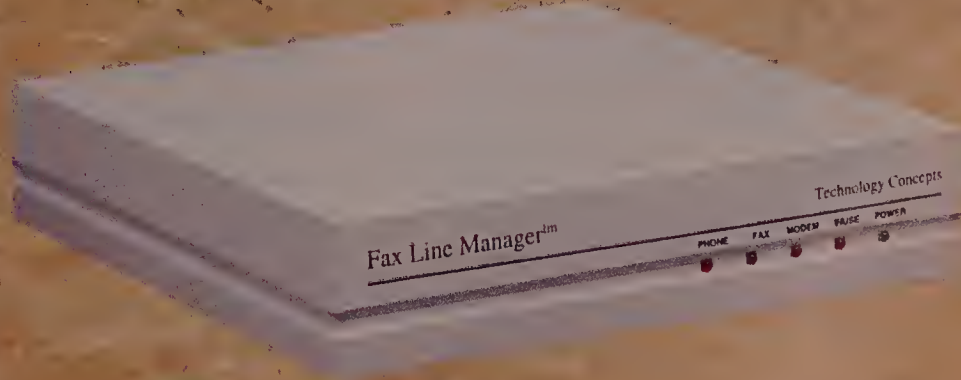
And because the ProModem Ultima follows most communications standards (including CCITT), you can connect to slower modems at 9600, 2400 or even 1200bps. With V.42bis error correction and up to 4:1 data compression, the Ultima can maximize your your throughputs. It also uses MNP-5 for error correction and data compression for backward compatibility with the large installed base of MNP modems. Prometheus #00062

\$379

Don't Install Additional Phone Lines—Fax Line Manager Supports Phone, Fax & Modem on One Phone Line

Fax Line Manager 203 \$138

Eliminate the need for multiple phone lines with the Fax Line Manager, a voice/data switch that detects and routes voice calls, facsimile messages and modem connections over a single line. The FLM 203 supports three devices, such as a phone/answering machine, a fax and a modem and lets you choose between two different modes of operation: SmartAnswer mode for home use with phone extensions or AutoAnswer mode for use with a PBX or key system. It includes nine programmable functions and does not effect voice calls. Technology Concepts #05741



#05739 Fax Line Manager Model 201 \$84

#05740 Fax Line Manager Model 202 \$98

STORAGE DRIVES

NEW LOW PRICE

\$1574

PLI Infinity 3.5" E Optical Drive

The next phase of optical technology has arrived! The PLI Infinity Optical read/write drives redefine high-capacity data storage. You can store up to 128MB of data on a single cartridge that is almost indestructible, and weighs less than five diskettes. Backed by the manufacturer's 1-year warranty with support provided toll-FREE. PLI #05785 ⑦

BUILT IN COMPRESSION TO 8GB

\$1778

The PLI 3.5" DAT 4GB

The DAT 4GB pinches pennies and provides peak performance by providing the lowest cost per megabyte available—less than 1¢. Capable of storing up to 8-gigabytes of data on a convenient 4mm cassette, the PLI DAT 4GB can locate and access files in 20 seconds. PLI #05813

#04698 PLI Infinity 3.5" Optical Drive	\$1628
#02851 PLI 5.25" SONY-Optical 600MB	\$3248
#05621 PLI 5.25" 1GB Max Optical	\$3628

\$598

PLI CD-ROM

The PLI CD-ROM is one of the most fully featured CD-ROM drives available. It has a self-cleaning objective lens which eliminates bothersome dust problems. Offers three audio output jacks and supports HyperCard audio XCMD's. PLI #03691 ⑦

MacUser
★★★★½
November 1991

\$498

PLI Infinity Floptical 21MB

The most exciting development in floppy drive technology ever! PLI's Infinity Floptical 21MB combines the well-proven, reliable performance of floppy technology with the higher capacity of hard disk drives, plus much more. Imagine your standard floppy drive reading and writing 1.44MB floppy disks faster than ever and using 3.5" floppy diskettes with a formatted capacity of 20.8MB. Inexpensive 21MB Floptical diskettes provide unlimited low-cost-per-megabyte storage. Includes turbo cache and turbo optimizer. PLI #04817

\$598

Infinity Turbo 40/88 MB

When you need reliable, flexible storage, you need the Infinity Turbo 40 and/or 88 from PLI. The Infinity is a true work horse, tough enough to take the punishment of constant use. The electrical engineering is top-notch, as are the internal components. Each PLI drive is rigorously tested to meet standards which far exceed industry requirements. The mechanism carries an incredible 60,000-hour MTBF rating. It's virtually impossible to damage the unit by inserting the cartridge incorrectly. Best of all, the Infinity 40/88 Turbo removable hard drive gives you infinite storage potential. Relatively inexpensive 40/88MB removable cartridges are easy to switch and store. Includes Turbo Optimizer, Turbo Cache and disk accelerator software. PLI #02181 ⑦

#00182 Infinity 88MB Turbo	\$728
----------------------------------	-------

NEW PRODUCT

For The PowerBook

PLI 80MB 2.5" Toteable Drive **\$648**

Built for people on the move, PLI Toteable drives offer 80 or 120MB of lightweight storage for the Macintosh PowerBook. Powered by AC outlet or an optional rechargeable battery pack, these rugged 2.5" drives support the PowerBook's power saving features. Toteables are available in PowerBook gray and deliver whisper-quiet operation. PLI #05789
#05790 2.5" 120MB Toteable Drive \$798

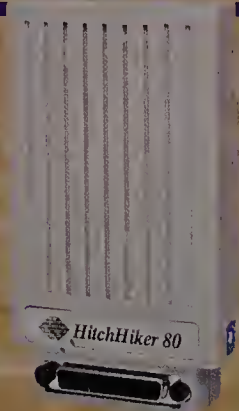
QuickSCSI Card **\$372**

QuickSCSI Card offers a simple, yet powerful way to eliminate the Macintosh SCSI bottleneck. It lets your hard drive work at its maximum possible performance level by supporting high-speed data transfer rates. The disk mirroring option lets you copy the exact contents of an entire drive to another. Run up to 14 SCSI devices simultaneously. PLI #00811 ⑦



ORDER THROUGH COMPUSERVE: SIMPLY TYPE "GO M2"

\$679



HitchHiker 80MB

HitchHiker offers all the capabilities of a standard external hard drive, yet fits in the palm of your hand. Weighing less than 10 ounces, each drive is shock-mounted in a compact, rugged case that measures only 5.4" x 2.9" x 1.1" (13.7 x 7.5 x 2.8 cm). But don't let the small size fool you. Featuring the latest 2.5-inch drive technology, HitchHiker gives you big drive performance and reliability. Just plug it into any Mac. It can be powered through the ADB port. Compact enough to carry in your shirt pocket, or in your briefcase along with your PowerBook. MASS Microsystems #00971

#00899 HitchHiker 40MB \$478

RECEIVE
YOUR SECOND
21MB FLOPTICAL
DISK FREE
(Limited Time Offer)



\$498

FloptiPak™21

The Floptipak21 lets you store 21 megabytes of data on a single 3.5" floppy-sized cartridge. Ideal for hard disk backup and expanded storage, the drive is compact, lightweight and its technology offers extremely high reliability. Floptipak21 reads and writes to standard high-density 1.44MB Macintosh diskettes in addition to its own Floptical® diskettes. #05801

\$549

DiamondDrive Portable 120



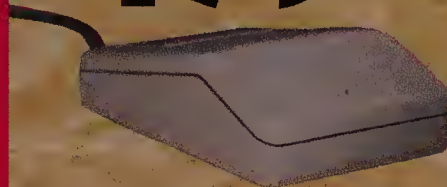
With the DiamondDrive Portable 120 it's easy for you to have 120 megabytes of data storage with you at all times. It offers all the capabilities of standard external hard drives in a compact, portable design. Weighing in at under 3 pounds (1.4Kg), the DiamondDrive Portable 120 fits easily into a briefcase. The mechanism is shock-mounted in a rugged, scratch-resistant case. And a DiamondDrive portable is so quiet, you'll hardly know it's there. Mass Microsystems #00336

#00337 DiamondDrive 210 Portable 2" Drive \$949

#00338 DiamondDrive 320 Portable 2" Drive \$1499

#00339 DiamondDrive 510 Portable 2" Drive \$1949

\$179



Fax Modem 24/96

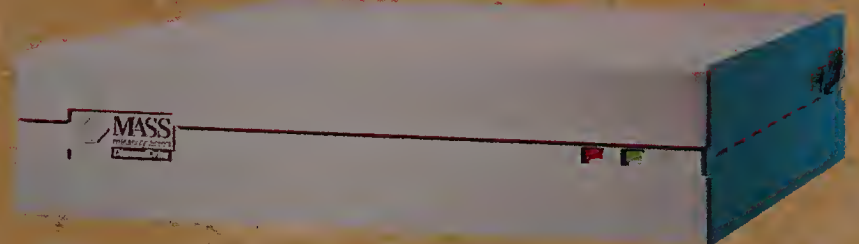
The MASS Microsystems Fax Modem provides 9600bps fax and 2400bps data transmission. It's fully supported by the universally recognized AT standard command protocol and the Group 3 standard, the latest fax standard that supports 9600bps transmission rates. Comes with feature-packed communications software. MASS Microsystems #00701

DataPak MO/128 Rewritable Optical Drive

\$1629

Because optical discs use a laser beam to read and write data, they do not wear out, and are not vulnerable to head crashes. This makes them much safer than magnetic hard disks, so they're great for archiving valuable data.

And the cartridges are interchangeable, so you can add extra capacity and transport large files. Mass Microsystems #00332



DiamondDrive Hard Drives

High capacity, high quality and high performance distinguish this family of hard drives. Unsurpassed DiamondDrive features—high data transfer rates of 5 to 6MB/sec. to buffer and 1.5 to 2MB/sec. to disk, fast average access times as fast as 12ms, data buffers of up to 128k, 1:1 interleave and a top rating of 150,000 hours MTBF—make these drives some of the best Mac hard drive values available. Mass Microsystems

#04612 DiamondDrive 120 \$599

#04613 DiamondDrive 210 \$998

#04614 DiamondDrive 320 \$1629

#04615 DiamondDrive 510 \$2148

DPI Drives: Don't Settle For Less! Top-Quality At Amazing Prices

**60 Day
Money-Back
Guarantee**



\$358

52MB Quantum External

Our 52MB Quantum is not only fast and reliable, but attractive and ergonomically pleasing as well. Some of its features include: 3.5" LPS drive type, an average access time of less than 17 milliseconds and a throughput speed of 2 to 4MB per second. DPI #04880

The Best For Less!

- Compact, space-saving chassis: Connor, Fujitsu & Quantum externals
- 2-Year limited warranty: Quantum & SyQuest
- Top-quality components manufactured by PLI, the leading manufacturer of after-market hard drives
- Driven by award-winning software
- All DPI drives are covered with a complete 60-day money back guarantee. If, for any reason, you are not completely satisfied with your drive, call us for an RMA number and return it to us for a full refund.

High-quality, low-priced DPI hard drives represent one of the best hard drive values available. Our DPI removable was given top honors by BMUG (Berkeley Macintosh User's Group). All DPI drives are built using only the finest components and drive mechanisms. Each drive is carefully tested for over 24 hours to assure your complete satisfaction. You will not find a better drive for the money.

**SYSTEM
7
COMPATIBLE**

Part#	Formatted MB	Drive Type	Drive Mechanism	Access Time	Throughput Mb/Sec	ZONE PRICE	Cost/Mb
04880	52	3.5"LPS	Quantum	17	2.0-4.0	\$358	\$6
04881	105	3.5"LPS	Quantum	17	2.0-4.0	498	5
04874	240	3.5"	Quantum	16	5.0-10.0	968	4
05786	85	3.5"	Conner	17	4.0-5.0	428	5
05787	120	3.5"	Conner	19	4.0-5.0	554	5
05788	212	3.5"	Conner	12	4.0-5.0	788	4
04451	44	5.25"	SyQuest	19	1.2	528	12
04886	88	5.25"	SyQuest	19	1.2	658	7
05817	425	3.5"	Fujitsu	12	4.0-5.0	1358	3
05366	520	3.5"	Fujitsu	12	4.0-5.0	1584	3

\$528

44MB SyQuest Removable

This is the ideal drive for those whose storage needs are continually expanding. When you find you need more space you simply purchase another inexpensive 44MB removable cartridge. DPI #04451

#04886 DPI 88MB Removable SyQuest Drive \$658



MAJOR CREDIT CARDS ACCEPTED



**Print
11" x 17"**

Generation Systems 415 Laser Printer

\$4494

Tabloid-size printing power in a small, flexible package—that's what you get when you purchase Generation Systems' 415 Laser Printer. It's the smallest tabloid laser printer available. But don't let its small size fool you. The 415 Laser is a serious PostScript 2 business workhorse which has been carefully configured to meet demanding graphics and general office needs. Two paper trays come standard: tabloid (11" x 17"), and letter size (8.5" x 11"). Generation System's sophisticated tray selector software lets you choose which paper you want to print on—eliminating those tedious trips to the printer to change paper trays. The 415 handles even the toughest jobs with ease. The true 400dpi resolution and rugged 15-page-per-minute print engine means your work looks great and prints super-fast! Generation Systems #05582

NEC

**Fax Card
Available**



\$1544

Silentwriter Model 95F

If you demand state-of-the-art technology and rely on getting professional-looking documents out of your printer, you need the NEC Silentwriter Model 95. It incorporates the latest in intelligent printer technology—Adobe PostScript II—with the latest in compatibility and performance. The Silentwriter 95 automatically reconfigures for PCs and Macs, simultaneously handles paper and envelopes and automatically detects the source file type and sets the printer accordingly. The Silentwriter prints 6ppm, comes with 2MB of memory and ships with 35 scalable Adobe fonts, 14 bitmat and 8 scalable HP LaserJet fonts. NEC #01032

**NEW
PRODUCT**

Fax Card for Silentwriter

\$526

Now you can send and receive original-quality PostScript faxes or conventional faxes from your Silentwriter Model 95 printer! You get the convenience of personal fax capability and the power of PostScript printing in a single desktop product. Fax an original-quality proposal to a sales rep for prompt delivery to a customer. Fax a high-quality proof to your client. The possibilities are endless. NEC #05798



MICROTEK

\$1398

TrueLaser Printer

If you're in search of a laser printer that's fast (6ppm), flexible and simple to use, you've just found it. For speed and versatility, nothing compares to Microtek's TrueLaser printer. This 300dpi laser printer comes with 35 built-in TrueType fonts and is fully PostScript and HP PCL4 compatible. The TrueLaser can also automatically switch between its AppleTalk, Centronics and RS-232C interfaces. Microtek #04047



TEXAS INSTRUMENTS : Fast, Affordable PostScript® Printing

\$1698

microLaser PS35 Turbo

The microLaser PS35 Turbo gives you 9 pages per minute and 35 scalable fonts, the latest Adobe Level 2 PostScript. It comes standard with 2.5MB of memory and parallel, serial and AppleTalk interfaces. Its super-small footprint (just 13.4"x14.2") makes it the perfect printer where space is a concern. Texas Instruments #00409



\$1298

PS17 microLaser Plus Printer

The PS17 prints at a speedy 9ppm, so you'll spend less time waiting, more time working. The PS17 comes with 17 Adobe PostScript fonts, a 250-sheet paper drawer and a super small footprint (just 13.4" x 14.2"). Comes standard with serial, parallel and AppleTalk interfaces. Texas Instruments #04096



\$1548

PS35 microLaser Plus Printer

The PS35 microLaser Printer handles even the most complex layouts with ease. MicroLaser PS35 comes with 35 Adobe PostScript fonts and prints from any Mac via the standard Apple, serial or parallel interface. Super-small footprint (just 13.4" x 14.2"). Texas Instruments #04313

**The Mac
Zone**
Established 1986

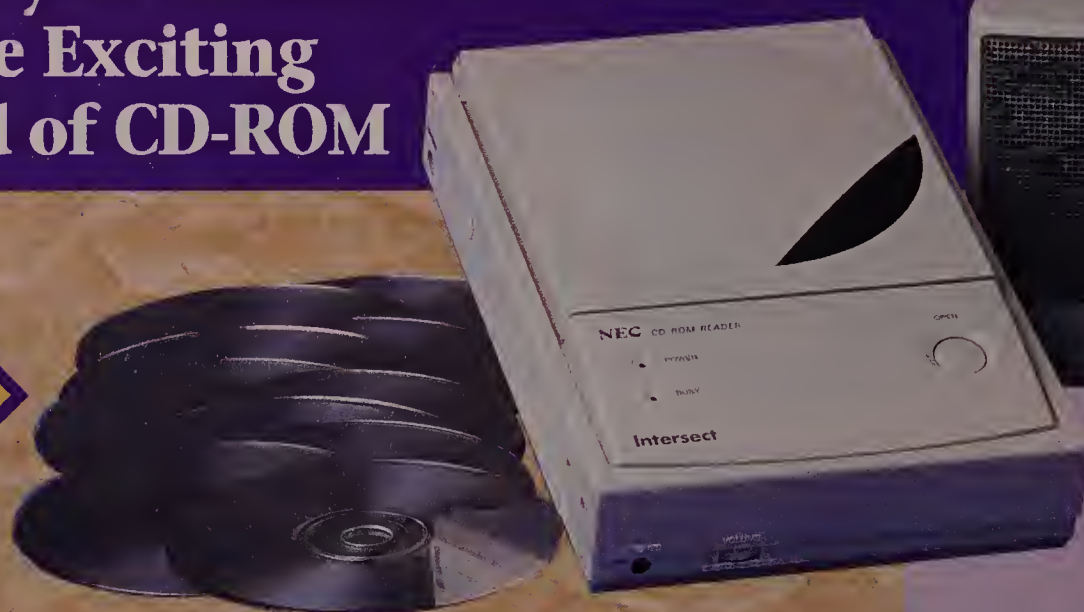
CALL 1-800-248-0800

**OPEN 24 HOURS
EVERY DAY**

CD ROM

Everything you Need to Enter the Exciting New World of CD-ROM

New from
NEC!



CD Express

You will not find a better value in CD-ROM than the new CD Express bundle from NEC. This affordable doorway package to the exciting world of CD-ROM saves you literally hundreds of dollars off the individually priced items. The 10 CD-ROM software titles alone are worth the asking price! But you get much more. Along with the software titles you get: a quality MPC-compliant CD-ROM drive, self-amplified stereo speakers, Mac interface and 4 size C batteries—everything you need to go live with CD-ROM in one box! NEC #05849

\$398

This CD

Package Includes:

- NEC CDR-25 CD-ROM reader (available only in this bundle) •
- MPC-compliant reader • Portable (2.2lbs) •
- Clam-shell opening (no caddy needed) •
- 650ms average access speed •
- 150Kb data transfer • 64k cache memory •
- Battery pack available •
- Excellent video playback capability •
- Self-Amplified stereo speakers •
- XT/AT or Mac interface • 4 size C batteries •

CD-ROM Multimedia on the Mac doesn't get any better than this!



Multimedia Gallery II

\$846

NEC's all new Multimedia Gallery gives you incredible value for your dollar. Suggested retail on the separately priced items totals more than \$2500! The package includes the NEC CDR-74, the world's fastest CD-ROM reader with an average access time of just 280ms and a data transfer rate of 150/300Kb/second. Plus, you get self-amplified speakers, headphones and a special external cable—everything you need to start working with multimedia, right on your own desktop! NEC #05848

This Multimedia Package Includes:

- CD-ROM Reader: CDR-74 •
- World's Fastest CD-ROM! •
- World's Only MultiSpin CD-ROM Reader •
- Access Time 280ms •
- Data Transfer Rate 150/300 Kb/Second •
- MPC Compliant • 64K Cache Memory •
- Double Dust-Door Protection • Socketed Firmware •
- 2-Year Warranty • Special External Cable •
- Self-Amplified Stereo Speakers •
- Stereo Headphones • 4 Size C Batteries •

10 CD-ROM Software Titles:

1. Software Toolworks World Atlas
2. Lucas Film Games Favorites
3. Publish It!
4. Great Cities of the World Volume II
5. Best of the Bureau
6. Interactive Storytime
7. Total Baseball
8. The Family Doctor home medical reference
9. Discis Book's Aesop's Fables
10. Manhole

6 Block-Buster Multimedia CD-ROM Titles :

1. Grolier's New 1992 Multimedia Encyclopedia with Video Clips
2. Great Wonders of the World with Video Clips
3. Just Grandma and Me
4. Color It!
5. Sherlock Holmes Consulting Detective with Video Clips
6. Multimedia U.S. Atlas

#05444 CDR-37 Macintosh Interface Kit \$398

#05445 CDR-74 Macintosh Interface Kit \$578

NEC

FAX YOUR ORDER ANYTIME: 1-206-881-3421



CD7 3.0: System Server Disk \$74

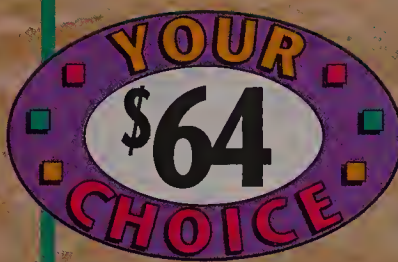
Do System 7 right with this incredible collection of savvy new utilities, extensions, control panels, INIT's, desk accessories, start-up items, new System 7 sounds, custom 3D color file and folder icons, productivity and networking software, plus thousands of other new System 7 enhancements. Quantum Leap #00668

Macademic Library 2.1 \$74

From art and music to math, science, foreign languages, computer programming, reading, writing and spelling, the Macademic Software Library is the world's largest collection of educational software. The ideal software for teachers and students of all ages. Quantum Leap #00151

Giga-ROM 2.0 \$98

Quantum Leap has re-released Giga-ROM! This 1,700MB collection of archived shareware and public domain programs for the Mac is designed to provide an entire software library in pre-compressed Compact Pro format for BBS and other uses. The Giga-ROM disc is the world's largest collection of CD software and includes the latest versions of System 7 for all Macintosh computers and thousands of compatible new programs. On Location index included. Quantum Leap #00666



Great Literature

BEP's Great Literature provides the complete text of 943 of the most famous works of all time, with poems and narrations by famous actors. And, like all Bureau of Electronic Publishing reference materials, it's easy to search and read. Bureau of Electronic Publishing, Inc. #04468

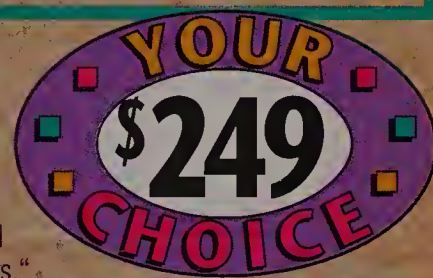
Monarch Notes

This CD-ROM edition of the Monarch Notes (the same reference notes students have been relying on for years) features over 200 different titles—for one low price. Bureau of Electronic Publishing, Inc. #04467



Countries of the World Encyclopedia

Countries of the World Encyclopedia is an incredibly powerful international reference tool. The Social Science Computer Review has called it: "Simply the best available on microcomputers." Bureau of Electronic Publishing, Inc. #04470



U.S. History on CD-ROM

U.S. History on CD-ROM includes 107 books relating to U.S. History, complete with photos and maps. PC Magazine has called this volume, "A collection that any history buff would drool over." Bureau of Electronic Publishing, Inc. #04469



Explore the Exciting World of CD-ROM with Wayzata!

World Factbook 1991 + Navigator\$34

A world of information on a single disk. This reference collection is based on the factbook produced annually by the U.S. Central Intelligence Agency. Wayzata #07510 ✓✓

MACnificent 7.0\$48

This incredible CD-ROM contains 800+ games, 450+ educational programs, 50+ commercial demos, 1500+ game support files and much more. Wayzata #05302 ✓

CD Fun House 7.0\$42

CD Fun House 7.0 is Wayzata's collection of public domain shareware/freeware games for the Macintosh. This new version has 25% more games! Wayzata #05301 ✓✓

Front Page News\$94

This incredible research tool includes the full text of 14 U.S.-and international-based wire services and 370,000 news articles. Wayzata #00472 ✓

SpaceTime and Art\$129

SpaceTime and Art gives you exciting QuickTime movies and more than 300 24-bit clip art pictures with HyperCard reference texts on outer space. Wayzata #01018 ✓



BBS in a Box!\$74

BBS in a box gives you so much for so little. You get an incredible 9,000 Macintosh files complete with BBS directories. Wayzata Technology #05303 ✓

The GEMMac 2.0\$74

The GEM Mac 2.0 CD-ROM contains over 620MB of the newest public domain software, including graphics, utilities, sound, INITs and CDEVs and more. Wayzata #05354 ✓

Sound Library 2000\$84

Sound Library 2000 contains over 2000 digitally-recorded sounds for the Mac. Contains 140+MB of auditory files. Wayzata #01019 ✓

Font Fun House\$34

Font Fun House is a fully usable CD-ROM with hundreds of fonts for your Macintosh and IBM-compatible computer. Contains shareware fonts in TrueType and Type 1 PostScript (ATM) formats. Wayzata #05845

Quick Art Deluxe\$171

This voluminous CD-ROM art library contains 3000 professionally hand-drawn images: birds, buildings, celebrations, drinks, education and lots more. Wayzata #00853 ✓✓

CD ROM & MIDI



Nautilus BackPac: Vol.1 \$44

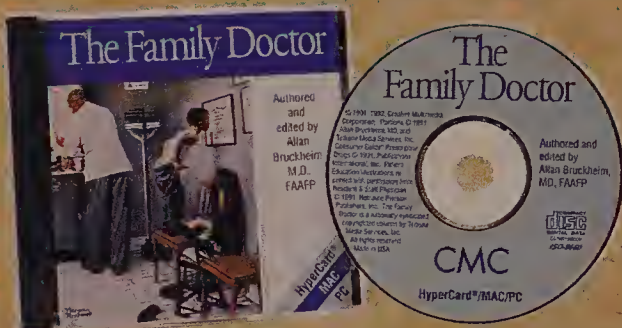
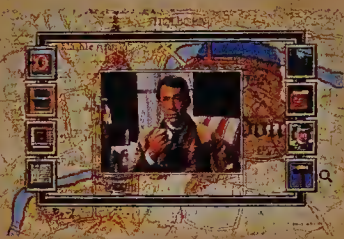
Nautilus BackPac is a great way to sample the excitement of a CD-ROM monthly subscription service and to discover the most popular multimedia information service available today! You'll enjoy exploring Nautilus BackPac with its over 2 gigabytes of software and information, including games and demos for people of all ages. Whether you love music or photography, education or news, technology or shopping, there's plenty of

BackPac to explore. BackPac: Volume 1 covers Nautilus issues 2/1 through 2/6 (1/91 - 6/91), plus you get a coupon for a seventh CD-ROM, FREE. Metatec Corporation #05428

- #05429 Nautilus BackPac Vol.2\$44
- #05829 Nautilus BackPac Vol.3\$44

Sherlock Holmes, Consulting Detective \$38

ICOM's Sherlock Holmes, Consulting Detective CD-ROM game features over 90 minutes of full-motion color video. ICOM Simulations #05529



The Family Doctor \$44

Owning the Family Doctor CD-ROM is almost like having your own personal physician at your disposal 24-hours a day. While it's not intended to replace your health care professional, it puts a wealth of useful health information right at your fingertips. The Family Doctor comes with:

- Dr. Bruckheim's easy-to-understand advice to over 1,500 of the most commonly asked medical questions
- Approximately 300 full-color medical illustrations
- Health Update Booklets with detailed information regarding the most common health problems
- And much, much more!

Creative Multimedia Corporation #05662

- #05663 Shakespeare\$18
- #05664 Sherlock Holmes on Disc!\$18
- #05665 Multimedia Birds of America\$28
- #05666 Multimedia Audobon's Mammals\$28
- #05667 Taran Trilogy: Quest, Beyond the Wall of Stars\$38



AudioShop 1.0 \$61

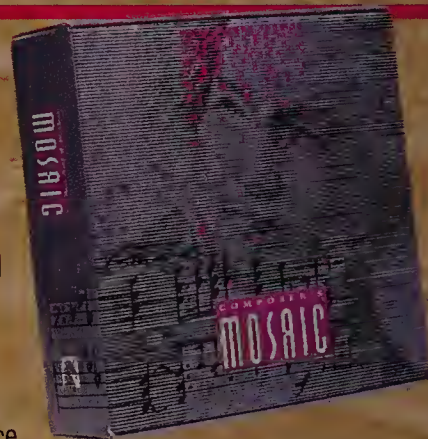
Record and edit Macintosh audio and control your CD-ROMs with AudioShop. It features an easy-to-use interface which resembles a home CD player, but with many additional editing features and special effects like echo. AudioShop supports all popular Macintosh sound formats for easy integration with other programs. Runs on Mac Plus and up machines with a minimum of 2MB of memory. Requires System 6.07 or higher. Opcode Systems, Inc. #05580

- #05591 EZ Music Starter Kit\$188

Mosaic 1.0 \$448

Mosaic makes music publishing easy. It's attractive, graphic style and careful adherence to Macintosh operating conventions make it a pleasure to use. You get advanced placement and layout algorithms and complete freedom to manually reposition or place any symbols. Mosaic uses a straightforward "click and drag" approach to move notes, dynamics and symbols or to re-shape groupings such as ties and slurs. Mark of the Unicorn #05579

- #05578 Digital Performer\$698



Vision 1.3 \$357

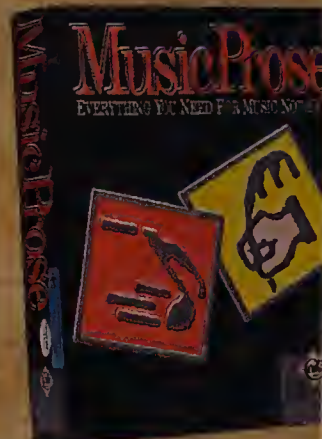
Vision is the professionals' choice for sequencing. Herbie Hancock, Jan Hammer and Thomas Dolby are but a few of the noted musicians who use Vision for their sequencing. Vision uses both graphic editing and list editing, simultaneously! Any data changed in one window is changed in the other, automatically. You can even use both windows on screen at the same time for the same track, each for its most useful features. Vision's graphic editing feature is one of the best ever developed. Click-and-drag notes to new attacks, pitches and durations. Handles 26 sequences per file with 99 tracks each. Opcode Systems, Inc. #04800

MusicProse 2.1 \$188

Noting your music shouldn't be hard work. And it isn't when you have MusicProse working for you. It provides an elegant balance of form and function—perfect for anyone new to computer notation. Compose, transcribe, orchestrate, playback and publish music, simply and easily, in real time or step time. Change bar lines, clefs and keys. Add rehearsal marks, lyrics and much more. It's everything you need for music notation! Coda Music #03128



FREE
Gallery
Librarian



WE SHIP WORLD WIDE! CALL 1-206-883-3088

Band-In-A-Box \$57

Band-In-A-Box automatically generates a complete professional-quality arrangement of piano, bass, drums, guitar and strings in a wide variety of popular styles. You'll find yourself transposing songs instantly and using chord inversions in any variety of tempos and styles. PC Magazine says, "This amazing little program creates 'music-minus-one' accompaniments for virtually any song, any style."

Band-In-A-Box understands repeats, choruses and verses and even varies the accompaniment, just as human musicians would. Band-In-A-Box is software that repeatedly surprises and delights you." PG Music #03453



Listen \$64

Listen brings you interactive ear training, the most effective way to teach yourself how to hear and understand melodies, intervals, chord qualities, inversions and tuning. Learn at your own pace. Choose keys, scales, modes and ranges for melodic and interval exercises. Imaga #04281



MiBAC Music Lessons \$74

Learn to read Music, in the comfort of your own home or office, at your own pace. "MiBAC's Music Lessons gets an A-plus," says *MacWorld* magazine. No previous musical experience is necessary. Music Lessons goes further than simple-ear-training programs. It gives you the basic theory necessary to really understand music. And it's easy and fun to use. Music Lessons is great for kids and adults at all musical skill levels. MIDI optional. MiBAC #04283



Jazz Improvisation \$79

Jam with a jazz trio anytime you want with MiBAC Jazz Improvisation. It produces professional-quality jazz in a multitude of styles. MiBAC #04284



Encore 2.5 \$386

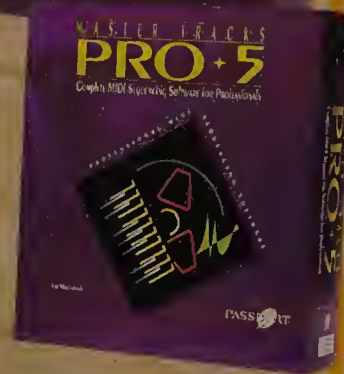
Whether you're transcribing a MIDI sequence, scoring your first musical or transposing individual parts for your band, Encore can easily and efficiently handle the task. Encore 2.5 will notate and print your music, as a complete score or extract one or more staves as individual parts, transposed for different instruments.

Passport Designs #00313



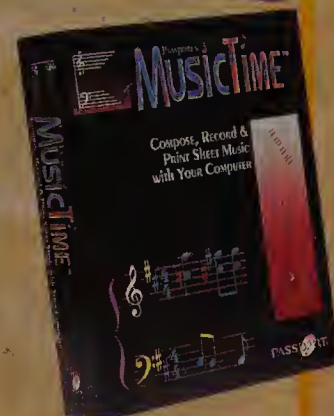
Master Tracks Pro + 5 \$328

Master Tracks Pro 5 combines professional tools for recording, editing and playing back music with the most accessible user interface in the industry. Works with MIDI instruments and the Miracle Piano™. Passport Designs #05264



Passport's MusicTime \$158

Passport's MusicTime is a desktop music composing and notation program for use with MIDI instruments and sound cards. Record your own performances. The flexible, easy-to-use interface allows you to enter music with your mouse, play one note at a time from your MIDI keyboard or automatically create a score from any Master Tracks Pro, Trax or standard MIDI file. Passport Designs #05518



MIDI Interface \$59

One of the best MIDI Interface modules available for the Mac, the Passport MIDI Interface for the Macintosh features one MIDI-in and three MIDI-outs. Flashing LEDs indicate MIDI activity. The package also includes *A MIDI Overview and Technical Primer* written by electronic music wiz Craig Anderton—author, composer, recording engineer and founder of *Electronic Musician Magazine*. Passport Designs #01355



ACS-300 Speaker System \$348

The ACS-300 Computer Speaker System is ideal for multimedia computers, CD players and interactive video games. These compact, high-fidelity speakers use patented technology, featuring a long-throw subwoofer that sits under your desk and 2 self-powered satellite shells, each with a 4" woofer and a 1/2" tweeter. Unique geometry offers multiple mounting options. Controls include bass, treble, balance, volume, DSP and A/B mixing. Altec Lansing #05689

POWERBOOK ACCESSORIES

PowerModem \$198 24/96 SR Internal

Make your Mac work harder for you with the unbelievably affordable PSI PowerModem. The PowerModem is not only an internal send/receive fax modem, it's also a 2400bps Hayes-compatible data modem.

The fax is Group III compatible, sends at a full 9600bps and receives transmissions at 4800bps. PowerModem will dramatically improve your PowerBook's performance. It lets you continue to work in any application while its intuitive software performs in the background. PSI #04948

#05694 PSI PowerModem II V.32bis \$548

05695 PSI PowerModem III 10/42 \$274



\$784

Power Portrait

This affordable, easy-to-install full-page display plugs directly into the SCSI port of your PowerBook, Classic, ClassicII SE or SE/30 computers. Its 15" full-page display features built-in acceleration that lets you race through graphic displays. Choose between 72, 80 and 88dpi. Create a virtual two-page desktop to power through multi-page tasks. Sigma Designs #00571



#00399 Sigma Power Portrait-Platinum \$784



\$158

External Full-Cycle Battery Charger for PowerBooks 140/170

"Memory effect" is the loss of battery capacity due to using a battery over only a portion of its storage range. Since the PowerBook automatically shuts down on low battery, the battery is never used over its whole range, so it won't develop a memory

effect. The Lind External Full-Cycle Charger not

only charges the PowerBook 140/170 ni-cad battery but

optimizes full performance and long life by giving you the option to discharge the battery completely before the charging cycle begins.

Lind Electronic Design #05354

#05352 Auto Power Adapter \$74

#05355 Auxillary Power Pak \$158

TouchBASE 2.0/NoteBook Traveler Deluxe Bundle \$98

Two terrific PowerBook products bundled into one great value pack!

TouchBASE is a database which keeps track of personal and business contacts. It remains handy all the time—no matter what application you're using. Kensington's NoteBook Traveler carrying cases are specifically designed to fit your PowerBook. They protect your system against scratches, dust, sharp objects etc. Kensington #05821



\$86

PowerMerge

PowerMerge solves the problem of keeping track of changes made to your files while working on your PowerBook. It simply and automatically synchronizes files between your PowerBook and your desktop Mac. It also features: notification if files have been changed on both

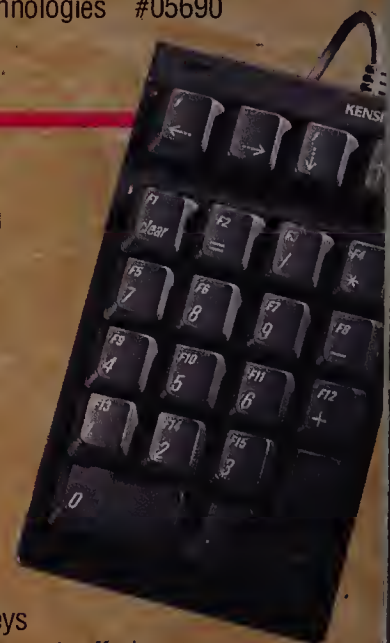
computers since the last update, history log of updates, include/exclude by file. Leader Technologies #05690



Kensington NoteBook KeyPad

\$104

The Kensington NoteBook KeyPad gives you the flexibility and features of a full keyboard when you use your Macintosh PowerBook. Its compact, sleek design is perfect for travel with your PowerBook or any other ADB device. This module can give you function and arrow key control, as well as the standard mathematical and number keys found on an extended keyboard. The keys are arranged in a traditional calculator-style layout, offering quick and easy number entry. The KeyPad is especially useful for entering figures in a spreadsheet and moving from cell to cell. And the function keys make applications like E-mail or network access even easier. The NoteBook KeyPad fits neatly into the Kensington NoteBook Traveler Carrying Case (sold separately). Kensington#05177



C.O.D.'S ACCEPTED ON ORDERS UNDER \$1000



PUT MORE POWER INTO YOUR POWERBOOK

Introducing Connectix PowerBook Utilities: the first software utility created exclusively for the PowerBook

The world's best-selling notebook computer just got better! Now you can get even more productivity out of your PowerBook™, with Connectix PowerBook Utilities (CPU™).

CPU's intelligent PowerManager™ extends your battery life. It gives you control over power consumption, and displays accurate battery status, time remaining and other key information in the menu bar. CPU keeps your PowerBook up and working longer.

CPU protects your sensitive data. The innovative graphic and password security keeps your information safe. When your PowerBook is unattended, your files are secure, whether it's running, shut down or asleep.

CPU offers unmatched convenience. Choose menu items and dialog box selections directly from the keyboard. You can spin down the hard disk, adjust the backlight, invoke security or sleep with a single keystroke.



Designed exclusively for the PowerBook, CPU instantly adapts to your changing environment. A flexible menu of personal settings

like Home, Office, Travel, Meeting or Power Saver lets you work more efficiently. CPU even adjusts your settings automatically between battery and AC power use.

Get the power of CPU and put more power into your PowerBook today!

**Connectix
PowerBook Utilities**

\$48

This "aggressively priced package" (MacWEEK 6/92) is "the first utility program to help conserve power and manage security on PowerBooks" (InfoWorld 7/92). CPU provides all this and over a dozen other controls, including Instant-Wake, Cursor Finder, Battery Manager, and the unique LCD Screen Saver. Connectix #05646  

CPU
CONNECTIX
POWERBOOK
UTILITIES

UTILITIES

HANDOFF II

Hand-Off II

\$54

Manage and access your files faster and easier with Hand-Off II. This indispensable utility turns the System 7 Apple menu into a multi-level hierarchy for launching, opening and browsing folders and files. You get pop-up menus, automatic compatible application substitution, document briefcases and more. Connectix #04889



NEW PRODUCT

Intermission

\$28

With Intermission you've get more than just a screen saver. You get a true dazzle-my-pupils-help-me-through-the-day screen saver! It comes with over 55 animated modules, full password protection, network support, system CPU monitoring and more. Icom Simulations #05602 ✓

#04542 On Cue II 7 \$54

OffLine

OffLine 3.0

\$59

The complete disk management system, rated best by MacUser, keeps getting better! Catalogs all your floppies, hard drives, cartridges, even CD-ROMs. A single catalog can hold millions of files on thousands of disks—without gobs of memory. Quick, flexible search engine finds any file on any disk, even if it's not mounted. OffLine rounds up duplicated files across all your disks, for easy cleanup of obsolete documents. Prints floppy labels, exports data to any other application. System Network Architects #00522

CLICK CHANGE

\$54

ClickChange

Toss ClickChange in the system folder and tailor the appearance of your Mac to suit you. Custom color schemes accompany your choice of button, window and scrollbar styles. Drab old cursors are replaced with exciting, animated, color alternatives. Your Mac responds with exotic sound when and where you choose. Rated 4 1/2 mice by MacUser, and MacWork says ClickChange "...is a comprehensive collection of fun goodies executed in an extremely professional package." Dubl-Click Software #03616

\$94

Now Utilities 4.0

MacUser calls Now Utilities "A must-have for experienced users and novice users alike." The collection includes six modules: Now Menus creates submenus in the Apple menu and can create additional pull-down menus or macros to launch applications or recent files; Super Boomerang finds recent or lost files; StartUp Manager provides complete extension management; WYSIWYG Menus keeps your fonts organized and displays them in their own typeface; Now Save protects work from crashes, and Now ScrapBook (formerly 5-mice rated PictureBook+) allows you to catalog your PICT, EPS, text, TIFF, sound and QuickTime movies. Now Up-to-Date V1.0 keeps your appointments and your associates up-to-date on and off the network. Share calendars, get reminders and print appointment books.

Now Software #04191 ✓✓✓✓✓

#00580 Now Up To Date \$66

#00572 Now Up To Date 5-User \$258

#00569 Now Up To Date 10-User \$394



Now Utilities



Redux

\$48

Redux backs up your files painlessly and quickly so that you can work without worrying about the health and well-being of all the stuff on your hard disk. Redux makes backup fast and easy: you can backup your whole hard disk with two mouse clicks. Inline Design #01946 ✓✓✓✓✓ 1/2

Help!

\$88

With Help! from Teknosys you can improve the efficiency of your Macintosh and avoid disastrous system crashes. Help! is the only Macintosh utility which uses artificial intelligence to pinpoint system configuration problems and help you solve them. Help! detects conflicts, incompatibilities, improperly installed files, environmental problems, damaged files and more.

Teknosys, Inc. #00867 ✓✓



HAM

\$48

With HAM you can easily choose which items appear in your Apple menu, and even change the order in which they appear! HAM automatically adds your most recently used files, folders, applications and servers to the Apple menu—so the information you need the most is at your fingertips, without any effort at all! Inline Design #04807

#02191 INIT Picker 2.02 \$35

#03327 Rival \$54

#02605 Screen Gems 1.2 \$34

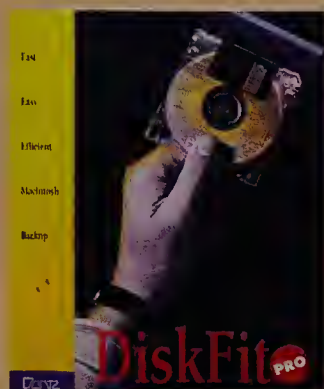


MAJOR CREDIT CARDS ACCEPTED



DiskFit Pro \$72

DiskFit saves you time by providing fast, easy, efficient backup to disks, cartridges or optical devices. It copies only new versions of files to the backup, keeping backup sets compact and backups fast. Files are stored in Finder format for easy retrieval. Compatible with both System 6 and 7, DiskFit Pro is the ideal backup solution for any Macintosh. Dantz #04722 ✓✓



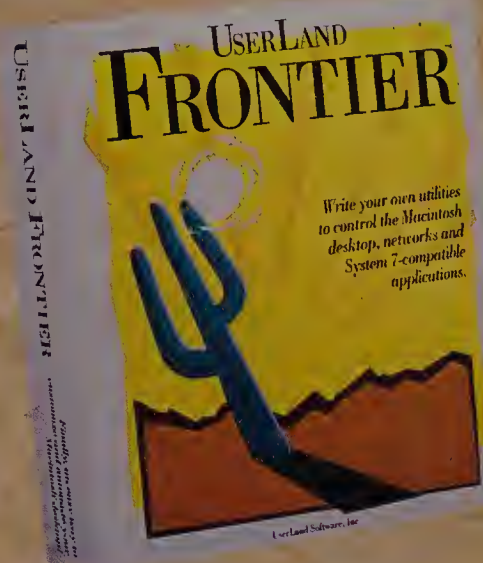
UserLand Frontier

\$188

UserLand Frontier gives you the power you need to turn tedious, error-prone desktop clicking and dragging tasks into efficient scripts that help you get more work done, more accurately, in less time. If there's a tedious and repetitive job you have to do, write a Frontier script to do it automatically while you're at lunch!

UserLand Frontier is the first scripting software that allows you to write your own desktop utilities to customize, automate and simplify your Mac. With it you can write your own utilities to control your Mac desktop, networks and System 7-compatible applications.

If you can code a macro, you can write a Frontier script that customizes or modifies your desktop to fit your specific needs. Or, if you have experience writing HyperTalk scripts, dBASE applications, MS-DOS batch files or Unix shell scripts, so much the better. The more experience you have programming, the more power you'll get from Frontier. It's a gutsy, powerful programming language that won't limit the creativity of professional C and Pascal developers. UserLand #05323 ✓✓



Retrospect \$146

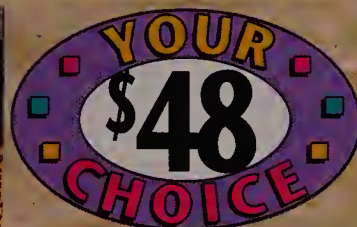
Retrospect provides automatic, unattended backup for any Macintosh to tape, cartridge or optical device. Set it up once, and the built-in calendar backs you up again and again. It also saves hard disk space by archiving seldom-used files to the backup media for future retrieval. Retrospect Remote brings the power of Retrospect to an entire AppleTalk network. Dantz #2586

- #03828 Remote 10pk w/o Retrospect\$146
- #04194 Retrospect 1.3 w/Remote 10pk\$263
- #00484 Retrospect 1.3 w/Remote 50pk\$648

AutoDoubler

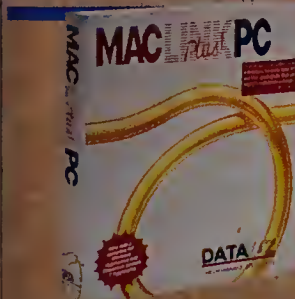
AutoDoubler is one of the easiest ways to increase your hard disk capacity. It automatically keeps your hard disk compressed. It's lightning quick and completely transparent, so it won't interrupt your work.

Salient Software #04955 ✓✓ 4.5/5



DiskDoubler 3.7

Make your disk drive more efficient. DiskDoubler effectively doubles or triples your storage capacity. Salient Software #03515 ✓✓ 4.5/5

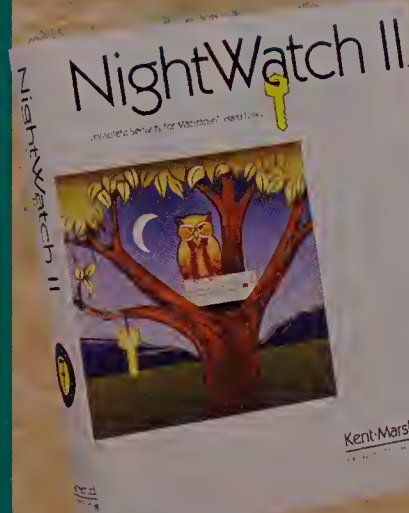
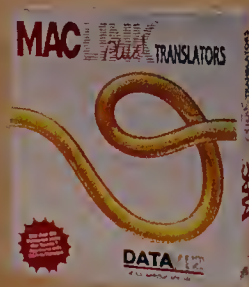


MacLink Plus/PC with Cable \$128

MacLinkPlus/PC contains the same translators and DOS disk mounting capabilities as MacLinkPlus/Translators, plus you get a cable and modem communications software to physically connect a Mac and a PC. DataViz #04916 ✓✓

MacLink Plus/Translator 6.0 \$108

Transfer and translate files between Macs and PCs—with all of your formatting intact! MacLinkPlus/Translators solves all of your Mac/PC incompatibility problems. MacLinkPlus/Translators includes DOS mounting software that allows your Mac Superdrive to read and write DOS disks. MacLinkPlus/Translators also translates the PC files! DataViz #04771

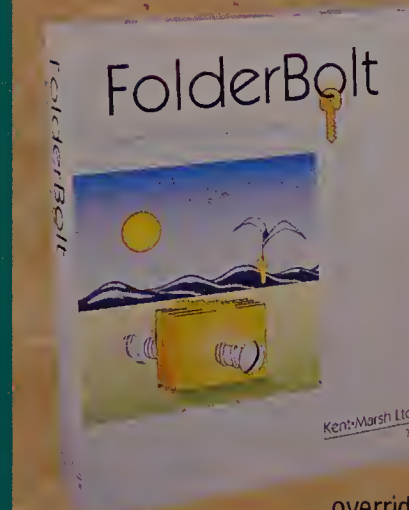


\$88

NightWatch II

Protect your hard disk from unauthorized access with NightWatch II. Its instant screen privacy feature thwarts snooping and well-intended rummaging through your desktop. It features a multitude of protection & timed-locking options, animated screen-saving images and entertaining sounds.

Provides rigorous protection at its friendliest. Kent Marsh #04981 ✓✓



FolderBolt \$72

Protect your valuable or confidential information from security breach! With FolderBolt, you can create locked folders, read-only folders or drop folders with a simple shift-click of the close box. They can't be opened, duplicated, deleted or moved without the user-definable password. If you like, you can lock/unlock them all at once. The package comes complete with activity logging and administrator override. Fully System 7 compatible and Savvy.

Kent Marsh #00258 ✓✓

Kaboom!

FOR MACINTOSH

More than 150 wild and wacky sounds for your Macintosh

Kaboom! \$28

Coughs, crows, crickets and car alarms! Using a Macintosh was never this much fun! With Kaboom! you can add more than 150 wild and wacky sounds to your Macintosh. Each one can be played every time you start up your computer, insert a disk, empty the trash and more. Amaze your friends with the sound of traffic jams, screams and ringing phones—even famous dialogue from "Twilight Zone," "I Love Lucy," Ronald Reagan and

others. With Kaboom! you'll never have to settle for a simple beep again. Nova Development #05268

FREE Mouse Pad!

Buy Kaboom! now and get this colorful Kaboom! mouse pad from the Mac Zone absolutely FREE, while supplies last!



\$41

More After Dark (M.A.D.) & After Dark Bundle



After Dark, the ultimate screen saver collection, comes with over 30 displays including Flying Toasters and Fish! With sound, password protection, logo and message displays. More After Dark comes with over 25 incredible new displays for After Dark. Features contest winners Mowin' Man, Tunnel, GraphStat and beautiful new fish! Includes Virex®-D virus detector, Crazy Kittens and Lunatic Fringe game modules. (Requires After Dark software.) Berkeley Systems #04046

#04053 More After Dark Vol. 1 \$22

#02785 After Dark 2.0 \$28

DupLocator

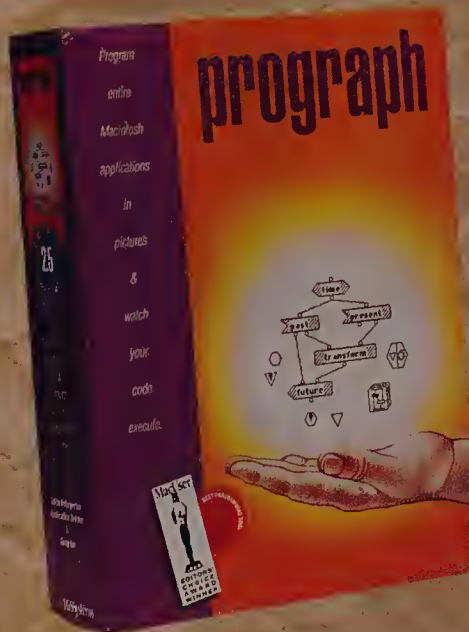
\$58

Find and organize your duplicated files, fast! DupLocator quickly locates and lists duplicated files. It works with floppies, hard disks, removable media, CDs, tape drives, shared volumes and SCSI devices.

Midnight Software #05598



Powerful Programming Tool



\$298

Prograph 2.5

With Prograph 2.5 you can develop complete stand-alone applications without typing long files of C, Pascal or other textual code and you can create user interfaces as fast as you can draw. Prograph helps you develop large or small applications, FAST!

TGS Systems #04253

ShadowWriter \$74

Gizmo Technologies' ShadowWriter transforms your inexpensive solo printer into a shared printer that any Mac on an AppleTalk-compatible network can use! Share your Personal LaserWriter LS, SC, IISC, ImageWriter, DeskWriter, PaintWriter or any other serial printer or plotter. Just one package gives an unlimited number of network users access to your printer.

Gizmo Technologies #04159



StuffIt SpaceSaver

\$34

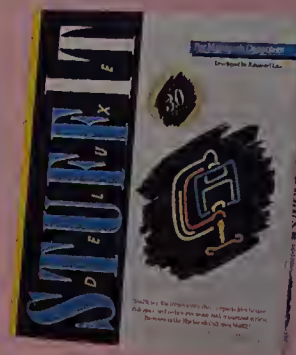
StuffIt SpaceSaver invisibly compresses your files and folders so quickly and quietly you may never notice it's there. At just about the speed of your hard disk, StuffIt SpaceSaver can compress and expand on-demand (as you specify) or automatically (while your Mac is sitting idle). Most importantly, you don't have to change the way you work on

your Mac. Double-click a file in the finder. Open a document from an application. Everything works the way it usually does. But with one difference—your files take up less space! Aladdin Systems #05828

StuffIt Deluxe 3.0

\$72

StuffIt Deluxe is the easy-to-use Macintosh standard for transparent compression, encryption and archiving. Files can be compressed down as far as 98%, with 60% being the average. StuffIt Deluxe comes with a handy Magic Menu Finder Extension utility which makes compression as simple as clicking on any file, folder, or disk icon. Compressed files can be manipulated as needed. Awarded 5 mice by MacUser magazine. Aladdin Systems #05827



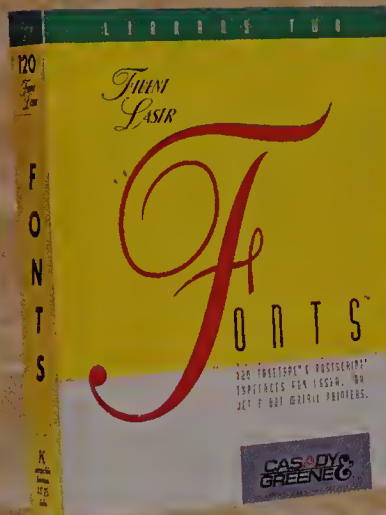
FAX YOUR ORDER ANYTIME: 1-206-881-342

Four Ways to Help Manage Your Work

Font Library 2

Collection of high-quality, remarkably priced typefaces offers an expansion of popular original collection. Library 2 contains 120 different typefaces in both TrueType and PostScript Type 1 versions. The TrueType fonts support most printing devices including dot-matrix printers, inkjet printers and laser printers.

Casady & Greene #00315

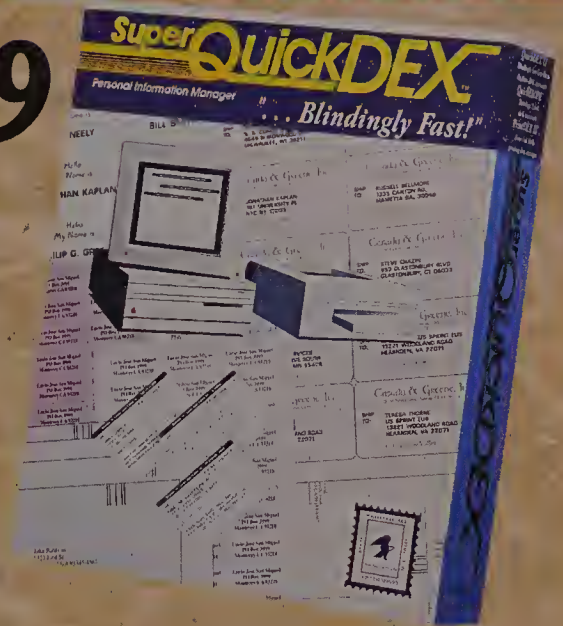


Super QuickDEX

Finally, a database utility which provides complete integration of database envelope formatting and printing! Some of its other features include: list merging, batch envelop printing and more. It even imports and exports to/from other applications.

Casady & Greene #04810

#4700 QuickDEX II \$22



Crash Barrier

Now novices and power-users alike can beat those system error blues. Crash Barrier increases your productivity by preventing problems before they arise, offering a choice of options when they do, and by minimizing the damage if all else fails. Casady & Greene #4761

NEW PRODUCT

Conflict Catcher and Other Innovative Utilities

New five-utility package containing: Conflict Catcher™, Memory Maxer™, Color Coordinator™, Whiz-Bang Window Accelerator™ and HotDAT™. Casady & Greene #05844

\$54

Five Ways to Ignore Your Work!

Glider V.4.0™

Can you pilot your glider through the rooms of the mansion without crashing? Be forewarned, it's a challenging feat. Numerous and varied obstacles attempt to impede your progress.

Casady & Greene, Inc. #04580

\$28

Mission: Starlight™

Your starfighter awaits to take you into hyperactive arcade madness! The evil leader of the Aalgezy Empire has enslaved the people of your own Procyon solar system and only you can stop him. You'll be blown away by the realistic flight action of this game.

Casady & Greene #03463

\$28

Mission: THUNDERBOLT™

You must capture an anti-matter bomb from hostile aliens who are trying to annihilate the human race. Venture into the depths of an abandoned underground research complex, battle aliens and wage combat using hi-tech weaponry. Ouch, watch where you point that laser! Casady & Greene #05047

\$28

Fun Bundle

Fun Bundle includes three award-winning games for a low price. You get: Crystal Quest With CritterEditor (5-mice rating, MacUser); Sky Shadow (5-mice rating, MacUser); and the exhilarating Mission: Starlight (4-mice rating, MacUser).

Casady & Greene #04582

\$58

Aqua Blooper Peeper™

How fast can you fit together the weirdest pipe fittings you've ever seen and reconnect the basement pipes? The false move will wash you up. Select pipes from the conveyor belt and fit them together without making a blooper! Casady & Greene #04581

\$28





Berlitz Think & Talk \$118

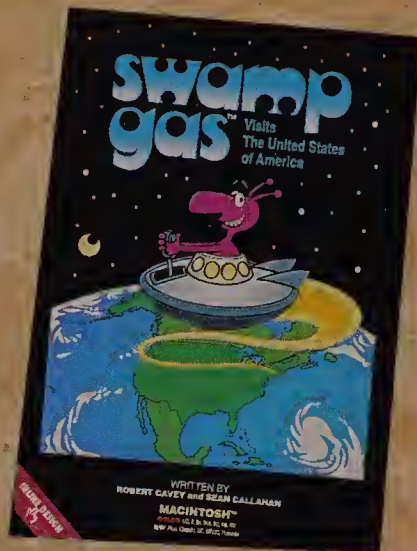
Learn a new language in 30 days or your money back! Think & Talk, the world's most successful language program, is now on CD-ROM. There are no tedious translations and no endless memorization. Fifty lively interactive scenes filled with extensive recorded dialogues, witty graphics, and audio cues help you learn fast. HyperGlot Software

#05437 Berlitz Think & Talk German
#05438 Berlitz Think & Talk French

#05439 Berlitz Think & Talk Spanish
#05440 Berlitz Think & Talk Italian

Swamp Gas Visits the U.S. \$31

You're an alien cruising over the United States in a flying saucer. You visit all the states, major cities and landmarks. Awarded Honorable Mention 1991 MacUser Eddy award for "Best Children's Program." Includes three FREE arcade games. INLINE DESIGN #04251



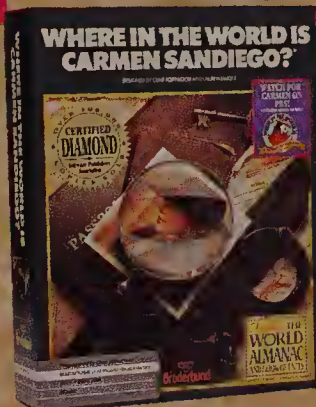
WordSearch Deluxe \$34

Improve your vocabulary in any subject area while you have fun solving word puzzles. Use WordSearch Deluxe by itself to create, solve, print word puzzles, or use it in combination with word processing, color paint and desktop publishing programs for more decorative results. Nordic #06059

#03102 Word Quest

Kid Pix Companion \$24

Kid Pix Companion is the amazing paint program for kids that produces the best-looking art you've ever heard. It combines goofy graphics, silly sounds and magical special effects. Brøderbund #05512



Where in the World is Carmen Sandiego? \$28

This time Carmen could be anywhere, anywhere in the world. By the time you find her you will know a great deal more about world history, geography and culture. Comes with a copy of the World Almanac. Brøderbund #02186

Super Solvers Spellbound! \$34

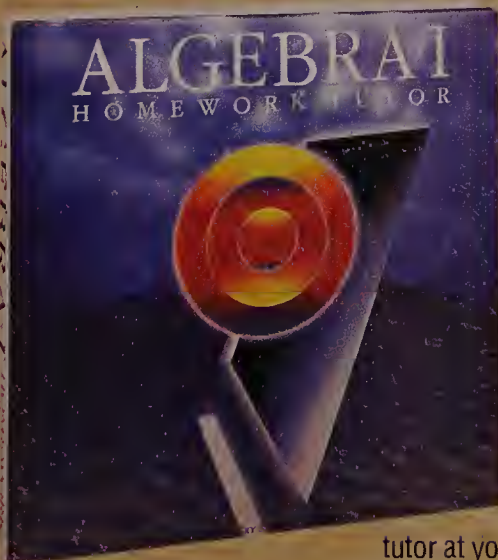
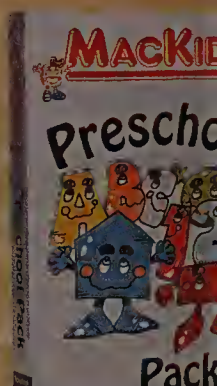
The Master of Mischief has challenged you to the ultimate spelling bee. Out-spell him and his friends and you could reach the White House! Spellbound! offers spelling enrichment, captivating animation and sound effects. The Learning Company #05652

#05126 Super Solvers Midnight Rescue \$34

MacKids Preschool Pack \$34

Give your kids a jump-start into the age of computing! MacKids Preschool Pack gets them started in the right direction with six full-color educational programs that hold their interest while teaching the alphabet, counting, concentration and valuable computer skills. Nordic #03101

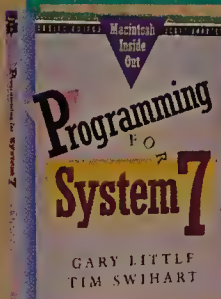
#01931 Turbo Math Facts \$24



\$49

Algebra I Homework Tutor

Algebra can be tough! With Algebra I Homework Tutor you have your own private tutor at your side. Enter your own math problems into the "smart" editor and the program walks you through the process. Missing Link Software #05379



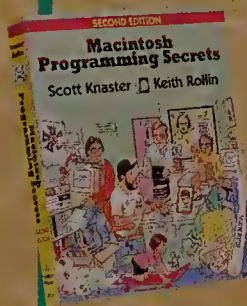
Programming for System 7 \$18

Each title teaches you how to program under the latest Mac technology. Addison-Wesley #01040

#01041 Programming QuickDraw \$1

#01042 Extending the Mac Toolbox \$1

#01043 Debugging Macintosh SW \$2



Macintosh Programming Secrets: 2nd Edition \$19

Programmers flocked to the first edition of this acclaimed classic. The new version has been thoroughly updated for System 7 and other new Mac technologies. Addison-Wesley #05525



ONE-STOP SOURCE FOR ALL YOUR MAC NEEDS

Minotaur, The Labyrinths of Crete

\$44

You and your opponents (up to 8 can play) are thrown into a huge randomly-generated labyrinth where you'll battle to the death. Bungie Software #00639

Hellcats Over the Pacific

\$38

Jump into the cockpit of an F6F Hellcat and rule the skies over Pacific islands. Provides fluid graphics, 16 colors and sound. Graphic Simulations #01046

Lexi-Cross

\$28

A futuristic, word-puzzle, TV game show parody tests your memory, strategy and puzzle-solving skills. The test with challenging trivia puzzles. With over 100 puzzles to solve, it's always thought-provoking. Hyperplay Productions #00859

Puzzle Master

\$26

Use your Mac to solve crossword puzzles, or create your own puzzles for fun or profit. Puzzle Master includes 250 of the classic *The New York Times* puzzles, 200 Daily puzzles and more. Centron #04554

Crossword Creator

\$39

Create crossword puzzles quickly and easily on your computer. Simply type in the words and Crossword Creator will instantly generate the puzzle. Includes Webster's New Thesaurus. Centron #05071

Moriarty's Revenge

\$31

The infamous Dr. Moriarty is now leader of a world-wide crime organization. Only you can track him down and bring him to justice. Mysterium Tremendum #03290

Cosmic Osmo & the World Beyond the Mackrel

\$28

Trap yourself into an Osmobile and head out for a cosmic trek through a wacky solar system. You'll spend hours exploring the extraordinary worlds of the moian solar system. Cyan #02528

3493 Cosmic Osmo \$34

The Manhole

\$18

Jump into your Macintosh and follow a wacky rabbit into his home in the fire hydrant. You'll enter a whimsical world where every animal talks and every new hallway leads to another wild dream. Cyan #02235

2541 The Manhole CD-ROM \$22



The Battle of Britain II

\$31

Buckle-up, you are about to assume the awesome responsibility of defending England against Germany's legendary Luftwaffe. Recreates the greatest air battle in history. Deadly Games #05041

BOMBER 2.5

\$30

You and your 10-man crew pilot your flying fortress "Naked Lady" on 25 missions over Hitler's Germany. Fully System 7 compatible. Deadly Games #05040

MouseStick Joystick 512 & Plus

\$58

When it comes to Mac joy sticks, it's tough to beat Advanced Gravis' high-scoring MouseStick. Advanced Gravis #02740

#02741 MouseStick ADB \$58

Mutant Beach

\$34

Overcome amusingly mutated creatures and more to return the stolen nose to his island's idol. "The coolest animated action-adventure/arcade game of the year!" -MacUser Magazine. INLINE DESIGN #04252

3 in Three

\$31

The latest game from legendary Mac game author, Cliff Johnson, 3 in Three gives you over 80 animated word and logic puzzles. Elected to Game Hall of Fame and picked as "Best Game of the Year" by Macworld. INLINE DESIGN #03599

Tesseract

\$31

Named "Best Brain Game," Macworld Game Hall of Fame, January, 1992, Tesseract is a color puzzle game in which you eliminate tiles from the "board" according to color and texture. There are 9 different boards and 3 levels of difficulty. INLINE DESIGN #03934

Darwin's Dilemma 2.0

\$31

Darwin's Dilemma is an addictive color puzzle game in which you move and merge life-form icons to work your way up the evolution tree. INLINE DESIGN #03494

Tristan: Solid State PINBALL

\$39

Tristan is digital pinball you have to see to believe. Fabulous sound, realistic ball action and an excellent array of scoring possibilities make Tristan remarkably real life. Amtex #00600

Take Your Mac Anywhere With I/O Design Cases



Ultimate Carrying Cases

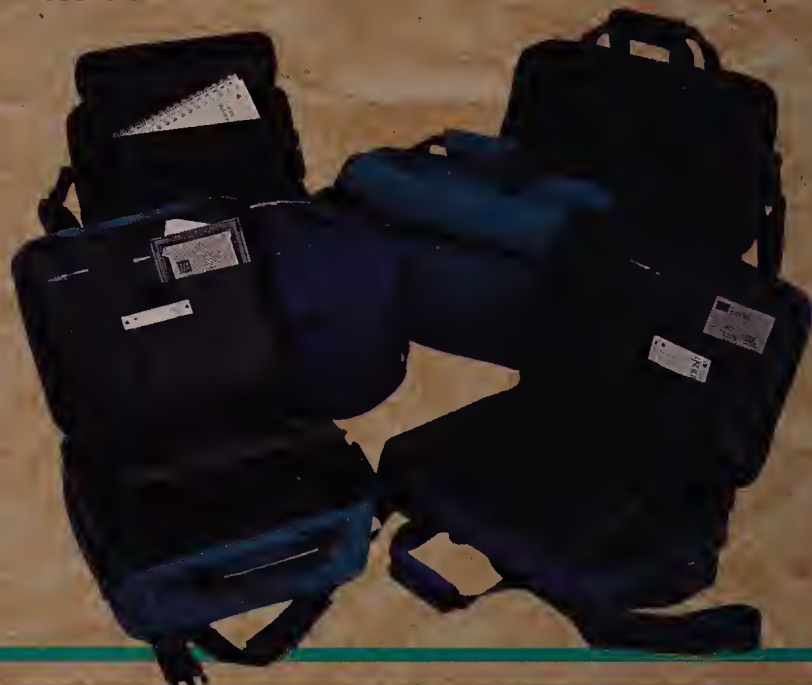
Put your Macintosh into an Ultimate carrying case from I/O Design and you can take it anywhere. These premium-quality cases pamper and protect your Mac with high-density foam padding. The sturdy DuPont Cordura® Plus nylon exterior looks great and minimizes weight. Inside, you'll find a padded compartment for your keyboard (any model), mouse, external hard drive and cables. Two exterior pockets hold everything from manuals and floppy disks to sweaters and umbrellas. Available in Black or Navy. I/O Design ✓

#05546 Ultimate Classic/SE Case	\$68
#05545 Ultimate Classic/SE Extended Case	\$74
#05547 Ultimate LC w/12" RGB Monitor	\$94
#05548 Ultimate StyleWriter	\$62

Mac PowerBook Cases from I/O Design

The Ultimate SL (Right) is a custom case designed to carry any Macintosh PowerBook, floppies, pens, business cards, manual and AC adapter. The Ultimate EX (Left) has the same features as the SL with additional space for a floppy drive, batteries, printer and cables in a lower compartment. Both cases are available in black, navy and teal colors. I/O Design

#05539 Ultimate Notebook SL Cases	\$58
#05538 Ultimate Notebook EX Cases	\$64



Protect Your Computer Investment From Dust and Damage

Nylon Dust Cover Series

Cover your system and protect it from clogging dust and accidents. We have a complete line of Basic Needs Mac Covers. Call our helpful sales advisors for the one that fits your system. Basic Needs



Basic Needs Product List

#00044 Mac Class w/LC kbd	\$16	#00104 Mac LC mon LC kbd	
#00058 Mac Plus w/Plus kbd	\$16	#00106 LaserWriter IISC/NT/NTX	
#00089 Mac IICx/ci w/ext kbd	\$17	#00107 HP Deskjet/DeskWriter	
#00100 Mac II/X/fx mon ext kbd	\$17	#00108 HP Laserprinter II/III	
#00102 Mac IIsi 13" mon ext kbd	\$17	#00130 Mac SE std kbd	
#00103 Apple ImageWriter II	\$11	#00132 Mac SE ext kdb	
		#00931 Mac LC/12 mon/LC kbd	
		#00933 Mac IICx/ci port display ext kbd	
		#00934 Mac IIsi 12" mon ext kbd	
		#00935 Mac IIsi 12" mon std kbd	
		#00936 Mac IIsi 13" mon std kbd	
		#00940 StyleWriter Printer	
		#00942 Personal LaserWriter SC/NT	
		#05451 Mac 13 Monitor	
		#05450 Mac 12 Monitor	
		#05471 Mac Quadra 700 vertical	
		#05472 Mac Quadra 900/950	
		#05473 Portrait Display	



FAX YOUR ORDER ANYTIME: 1-206-881-342

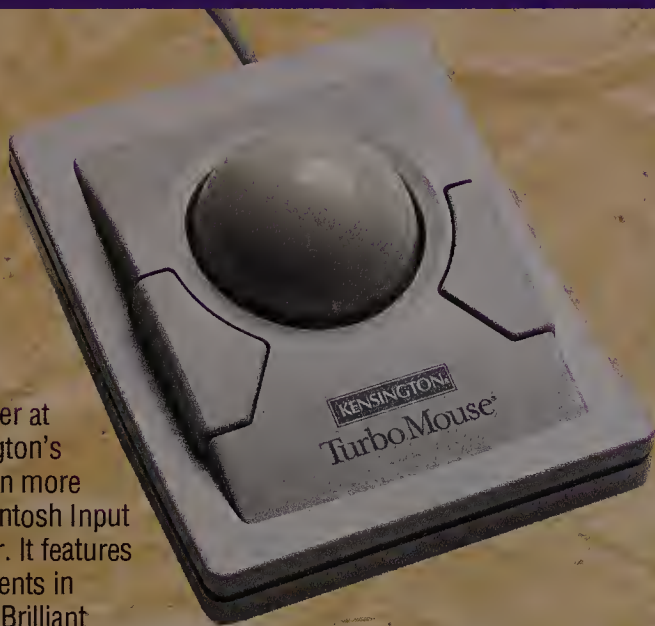
\$106

Turbo Mouse 4.0

Operate your computer at turbo Speed! Kensington's Turbo Mouse has won more awards for Best Macintosh Input Device than any other. It features significant advancements in trackball technology. Brilliant Cursor™ command technology, for example, lets you automatically jump to user-defined areas on screen with virtually no effort.

The Turbo Mouse 4.0 trackball also features an improved hardware design with a large ball for greater control and comfortably positioned buttons that have a light, easy-to-click feel. Two Apple Desktop Bus (ADB) connectors let you chain other input devices—even use your Turbo Mouse trackball and your standard Apple mouse at the same time!

The new Turbo Mouse software combines advanced acceleration, "enhanced mouse button" commands, plus other user-programmable features. It's fully System 7 and A/UX-compatible. Measuring only 4.5"x5.75," Turbo Mouse is constructed of durable ABS plastic and is designed to match Macintosh computers. Comes with the manufacturer's limited lifetime warranty. Kensington #01292



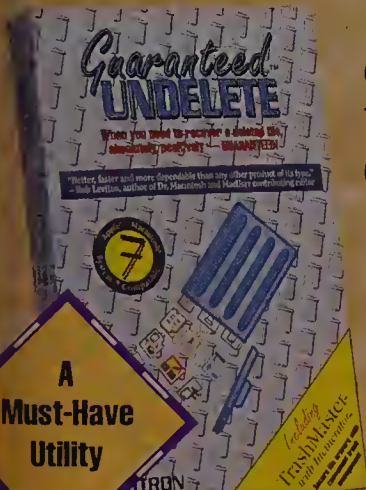
\$125

Mac 101E Keyboard

Successor to the best-selling MAC-101 keyboard, the MAC-101E is renowned for tactile-feedback keys that give you the touch and feel you need for faster typing with fewer mistakes. Utilizes the extended 105-key layout with built-in function key template system. Its advanced ergonomic design includes color-delineated keys, caps/periods-lock and interchangeable control caps-lock keys. Compatible with every model of Macintosh. DATADESK #01584

Guaranteed Undelete \$44

Other utilities insist that you take your chances when you undelete a file. Only Guaranteed Undelete ensures that deleted files are reclaimed in the order they were deleted, GUARANTEED! Simply browse the menu of deleted items and select the file or folder you want to recover. You can even recover files on remote volumes. It's the ideal safety net if you copy files back and forth to your PowerBook! Utilitron, Inc. #05743

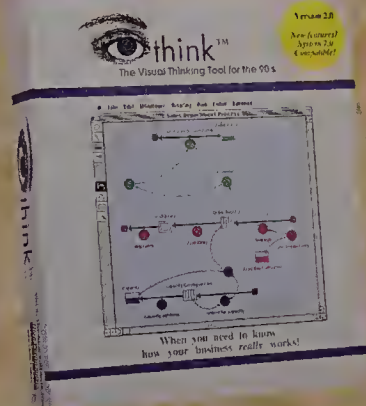


A Must-Have Utility

i think 2.2

\$424

Get on top of the learning curve with think, the amazing software package that accelerates both individual and organizational learning. The user-friendly graphical interface enables you to map, model and simulate business and organizational processes. High Performance Systems, Inc. #03837



Refill Your Printer's Ink Cartridge for Half the Price!

CompuJet Ink Cartridge Refills

CompuJet Ink Cartridge Refills by American Ink Jet are the easy and economical way to keep jet printers printing at their best possible quality.

You will appreciate the bold, extra-vivid colors, the ease of refilling and especially the savings (usually about half the cost).

For the past eight years, American Ink Jet has been the world leader in high technology ink products. This technology has been used to produce ink jet refill systems that meet or exceed the original equipment manufacturer's ink specifications. American Ink Jet



- #05067 CompuJet BubbleJet Ink Refill System\$14
- #05069 CompuJet DeskJet Ink Refill System\$14
- #05068 CompuJet StyleWriter Ink Refill System\$14
- #05066 CompuJet PaintJet Ink Refill System\$18

FastLabel Labeling Software

Especially designed to simplify label printing!



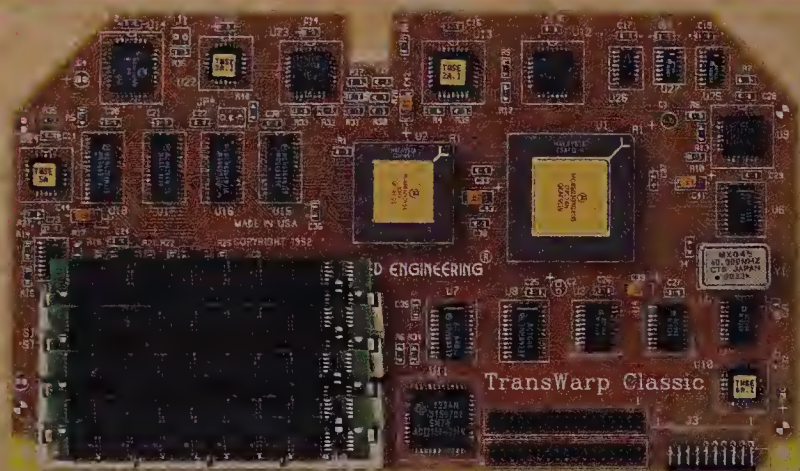
\$42

Saves You Time

FastLabel 3.1

FastLabel 3.1 prints labels in three easy steps: choose a template, enter or import the names and addresses, then print. It prints all popular label sizes (including Avery), and generates postal barcodes. Control font & style and create new templates and layouts. Import PICT or EPS graphics. Supports all Mac-compatible printers. Labels Included. Vertical Solutions # 00576

Boost Your Productivity With Applied Engineering



TransWarp Classic

\$478

Increase the processing speed of your standard Mac Classic by as much as 4 times! This 16MHz 68030 accelerator/memory expansion board for the Macintosh Classic upgrade for the Macintosh Classic will change the way you see your machine. The TransWarp uses a 32K fast static RAM cache together with a 68030 processor to give you processing speed you never dreamed your Classic was capable of. The board comes standard with a 68882 floating point unit (FPU) math chip that greatly enhances the speed of any math functions, so your CAD programs and spreadsheets run like lightning. Plus, you get four on-board SIMMs sockets which allow you to transfer the existing memory in your classic. You can even add more memory! Applied Engineering #05363



AE Plus Drive 1.44/800K FD

\$298

The new 1.44MB floppy Plus Drive is one of the finest drives available for the Mac. Some of its many features include: SuperDrive capability with the Mac Plus, SE and Mac II family; MS-DOS compatibility; two color read/write activity light; auto, touch and paper clip eject; die-cast Apple "platinum" case; and the manufacturer's full 1-year warranty. Applied Engineering #04956 ✓✓

#05315 Cable for Mac II \$14



#05910

#05907

#05906

Rhino Carrying Bags

Nothing protects your computer like a quality Rhino carrying case. Rhino's unique, cushioned, thermoplastic barrier with its double wall, honeycomb design, elastically disperses any shock. The unique velcro-edged partition dividers let you adjust the interior partitioning to custom fit your equipment. Expandable models incorporate a patented, zippered compartment that can dramatically increase the case's capacity. Rhino cases are made in the U.S.A from tough, weatherproof, stain and tear resistant CORDURA nylon and the finest workmanship and quality materials available. Covered by the manufacturer's 1-year limited warranty. Color: black. Innovative Manufacturing

#05906 Universal PowerBook, Expandable: 17"x4"x14"	\$78
#05907 PowerBook/Fax Case: 13.25"x2.5"x13.25"	\$44
#05910 Best PowerBook Case: 15"x2.5"x10.25"	\$38
#05908 PowerBook/Fax Case, Expandable: 13.25"x2.5"x13.25"	\$54
#05909 PowerBook/Fax Case, Leather: 13.75"x2.5"x13.75"	\$128
#05911 Best PowerBook Case, Leather: 15"x2.5"x10.75"	\$124

\$898

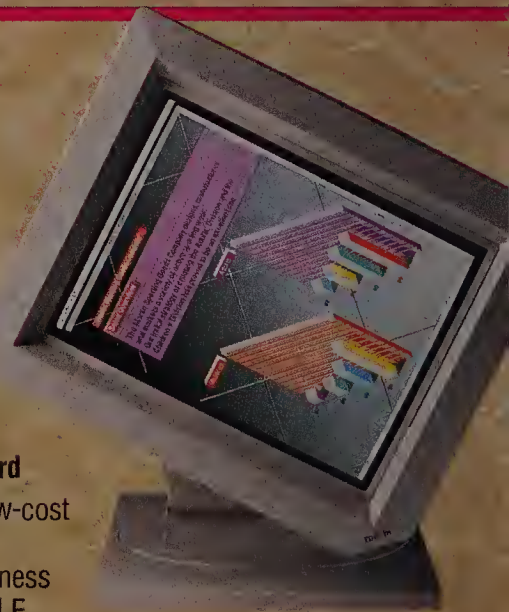
Radius Color Pivot/LE Display Bundle

Includes Color Pivot interface card

The Radius Color Pivot/LE is a low-cost solution for users who require a productive color desktop for business applications. The 15" Color Pivot/LE offers portrait and landscape operation so you can view your documents in either orientation, whichever is best suited for your purpose. Color Pivot/LE requires a Radius Color Pivot video interface for 256 colors and offers a high resolution of 832x624, 78dpi at 72Hz refresh. Full pivoting, ergonomic design and excellent image focus and clarity are standard features. Priced very attractively, this display is compatible with the Macintosh Quadra, II series, LC and SE/30 computers.

- Portrait and landscape orientations allow you to present your document in the view best suited for your current application.
- Affordable price provides an excellent alternative to higher-priced, similarly featured 16" displays.
- 15" color display shows a page of text, numbers or graphics for expanded views of your work.
- 256 colors creates compelling documents and presentations.

Radius #05490

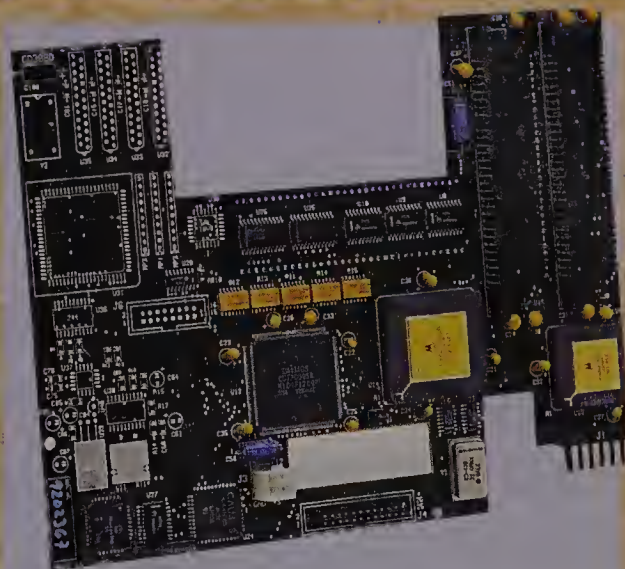
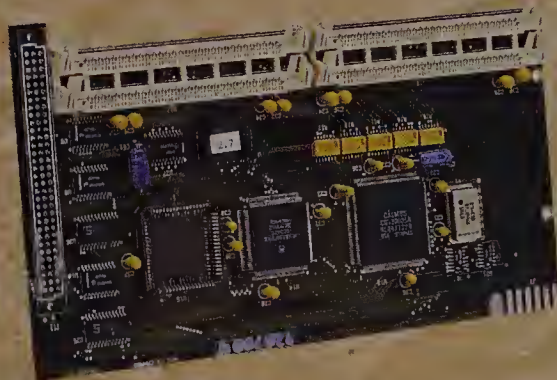
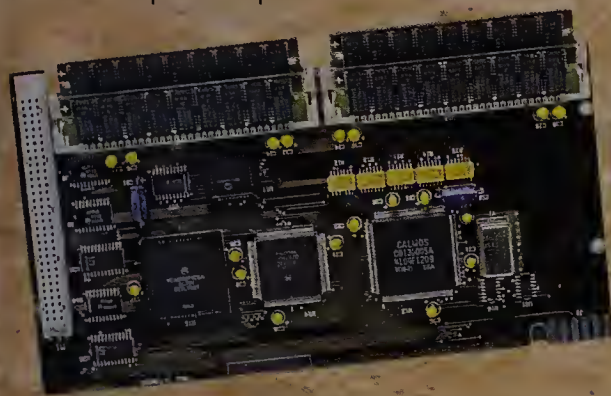


EDUCATIONAL P.O.s ACCEPTED

Give Your Mac A New Life

NewLife 16MHz Accelerator! w/o FPU (Classic/SE)

Put high performance acceleration into your Mac, at a price that will surprise you. With the NewLife Accelerator! you can run applications that require more processor speed or memory, and you can use fast SCSI hard disks to quickly access large amounts of data. NewLife Accelerator! really does give your old Mac a new life and allows you to stay productive in today's rapidly changing software environment. NewLife Computer Corp.



16MHz w/ FPU **\$579**
Mac Plus

Make your Plus a serious business tool with a NewLife 16 Accelerator! Add a high speed SCSI port, 68030 power with FPU to speed you through your work. Run System 7 effortlessly and expand your memory to 16MB (VIRTUAL 3.0 required). NewLife Accelerators deliver the speed you need at a price you can afford. NewLife Computer Corp. #04915

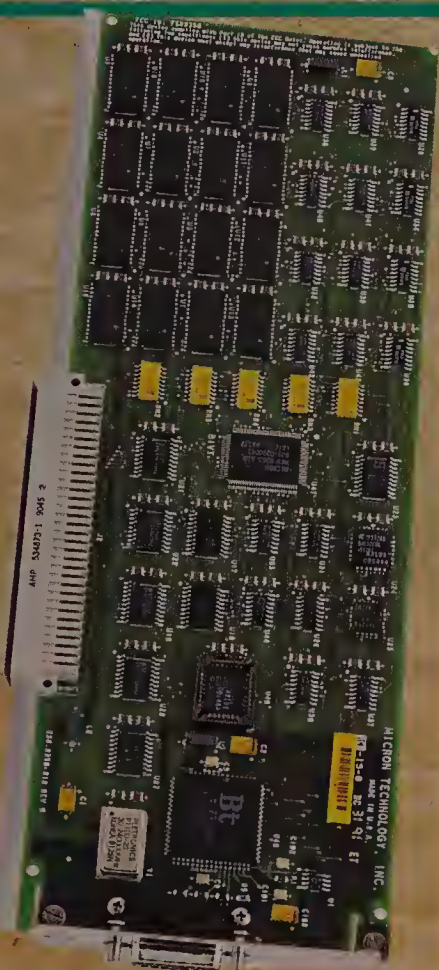
- Features a flexible memory expansion structure using SIMM technology. You can use either 1MB or 4MB SIMMs to provide either 4MB or 16MB of system memory.
- Compatible with System 7
- Supports virtual memory through "virtual™" by Connectrix.
- Powered by a 68030 CPU
- Gives you the performance you need to run powerful programs fast!

#04952 NewLife 16MHz Accelerator! w/o FPU (Classic) \$489
#04919 NewLife 16MHz Accelerator! w/o FPU (SE) \$398

\$468

Xceed MacroColor II 24-bit Board

Based on Xceed's exclusive enhanced NuBus architecture, the MacroColor II achieves nearly twice the performance of the leading 24-bit card without the need for additional (and costly) acceleration. Made for your standard 13" or 14" monitor, the MacroColor II will display 16.7 million colors at 640x480 resolution. Fully compatible with System 6 and System 7, it includes the Virtual Video desktop expansion utility and 8/24-bit MacroPaint software, plus a five-year registered warranty and unlimited, toll-free technical support. Xceed Technology #00608



#02885 Xceed Mac II 8-bit 13"/14" \$268
#00607 Xceed MacroColor 30 24-bit \$488



\$778

RasterOps 24STV

The 24STV is a new-generation 24-bit true-color display board capable of displaying real-time video in a screen window. The 24STV drives a 13" monitor in 1, 2, 4, 8 or 24-bit color modes at 640x480 resolution. It features a 2X and 4X pan/zoom and extended desktop, a 1-bit mask plane for overlaying windows or buttons over live video windows. MediaGrabber software (included) provides extensive control over the display and capture of a single video game or a sequence of frames for use as an animation file. RasterOps #00005



**NEW
PRODUCT**

\$88

Magnet 1.0

The First Intelligent Agent for the Macintosh.

Imagine that you have your own personal assistant to synchronize the information on your PowerBook and desktop computer, and back up your hard disk after you've left work for the day. Or, an assistant to browse the network every ten minutes for an important authorization from purchasing that you've been waiting for. Magnet 1.0 delivers these powerful, but easy-to-use assistants and more to Macintosh users running System 7.

Agent Technology— The Power Behind Magnet 1.0

Using revolutionary agent technology, Magnet 1.0 lets you create "personal assistants" or agents to automate a wide range of repetitive file-related tasks. Agents act like magnets, attracting files to their location at pre-specified times. To create an agent, you simply tell Magnet what files to find, what to do with the files (e.g., copy, move or alias) and when to do it. Best of all, agents are ultra-easy to use. There's no scripting, you simply point and click! Once established, agents will run invisibly in the background, pulling files to the desired location, at the scheduled time, without further supervision.

Magnet Does More So you Can Get More Done

Magnet's value comes from the program's ability to automate so many different tasks. It's like having a whole group of file-related utilities wrapped into one program. Here's a list of some of the important tasks Magnet can automate:

• BackUp:

To automate file back up with Magnet, simply identify the files you want to back up and when (at shutdown, when a server or SyQuest is mounted or at regular intervals on a daily or weekly basis) and the agents will take care of the rest.

• Keeping Shared Files Current:

By taking advantage of System 7's FileShare, you can create agents to search for new or updated files on each node of a network, and retrieve the most recently edited copy to your desktop computer.

• Background Browsing:

You can create Magnet agents to cull through the voluminous network of information to find and retrieve what is important to you. And Magnet will browse in the background while you work.

• Personal Filing Assistant:

Magnet acts like a personal filing assistant, periodically cleaning up the desktop and putting files away according to your directions.

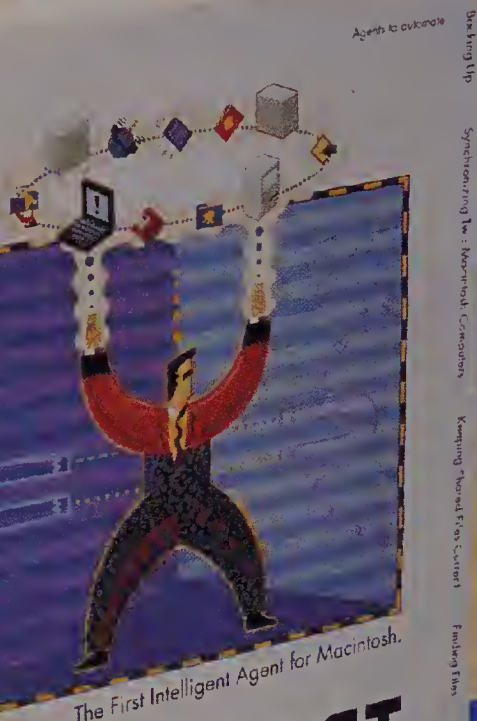
• File Find and File Management:

Magnet's powerful search engine—essential to creating agents—is a valuable utility on its own. Magnet performs multi-attribute searches of local volumes three times faster than the System 7 Finder and ten times faster across network volumes, all without using indexes.

No Hands Software #05899

MAGNET

No Hands
Software



MAGNET

**ATTENTION
POWERBOOK
USERS!**

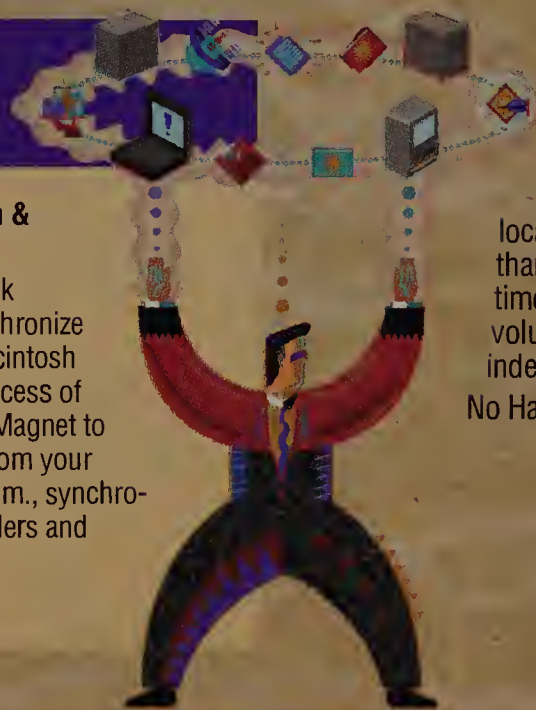
With Magnet, Synchronization is as easy as Pointing to Two Folders

• Synchronization:

When a PowerBook owner begins working on a file that also exists on his or her desktop Macintosh, the latter file immediately becomes out of date. The challenge of keeping folders on two Macintosh computers in sync has been identified by Apple as the number one problem of PowerBook users. Magnet's synchronizing agents ensure that no critical information is overwritten, even if files in both locations have been changed since the last time the synchronizing agents ran.

• Remote File Synchronization & Retrieval:

Magnet users running AppleTalk Remote Access can easily synchronize information on two remote Macintosh computers or automate the process of downloading remote files. Set Magnet to access your home-base Mac from your PowerBook every night at 11 p.m., synchronize your work-in-progress folders and log off—all automatically.



FAX YOUR ORDER ANYTIME: 1-206-881-342

**CALL FOR
EVERYDAY
LOW
PRICES**

Create Amazing Artistic Effects with Aldus Gallery Effects

\$128

Aldus Gallery Effects

Winner of MacUser's MacEddy Award for Best Visual Resource, Aldus Gallery Effects is a unique library of artistic effects that automatically turns grayscale or color scanned photographs and other bitmapped images into spectacular, breathtaking works of art. Gallery Effects is a "must have" for anyone using a scanner or doing desktop publishing, graphic design or presentations. Sixteen "master effects" are included.

And there are thousands of variations from each master effect! Each of the sixteen master effects has individual controls to let you customize the effect. For example, the Watercolor effect has controls to adjust the brush detail, the shadow intensity and the texture level.

Gallery Effects allows you to save up to 25 settings per effect, so you can preserve the fruits of your creative vision to use again and again. Achieve visual impact and a consistent look throughout a document by applying the same effect to every image. You can also apply multiple effects to a single image—the possibilities are endless.

Works directly with programs like Adobe Photoshop, Aldus SuperPaint 3.0 and Fractal Design Painter, or as a stand-alone application, or even as a DA. #04121

Here's What The Experts Are Saying

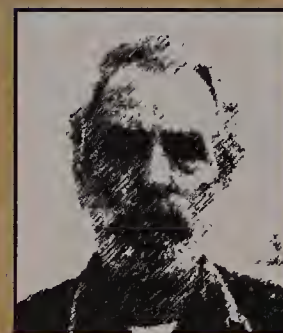
"Gallery Effects lets the artist in all of us blossom"
— *InfoWorld*

"This is one tool everyone will want..."
— *Business Publishing*

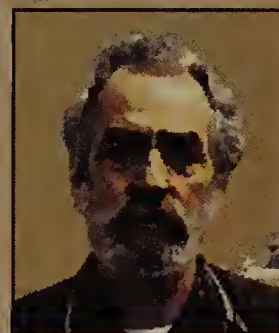
"Aldus Gallery Effects: Art made easy."
— *Computer Pictures*

Master Effects

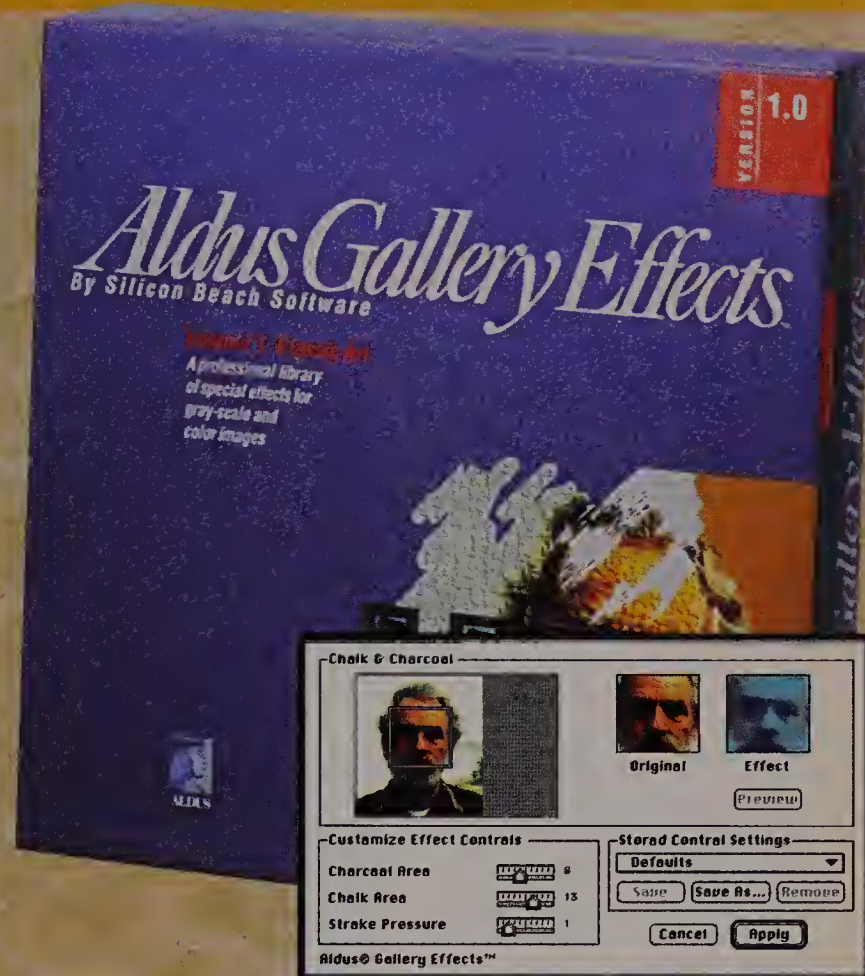
- Charcoal
- Dark Strokes
- Fresco
- Mosaic
- Craquelure
- Spatter
- Chrome
- Dry Brush
- Poster Edges
- Smudge Stick
- Film Grain
- Ripple
- Chalk & Charcoal
- Emboss



• Graphic Pen



• Watercolor



Key Features

- Artistic effects
- Save up to 25 settings per effect with each document
- Intuitive control settings
- Interactive visual previews with movable viewing rectangle
- Plug-in filters for graphic design
- Stand-alone application
- Industry-standard file formats
- Brightness, contrast and color balance controls

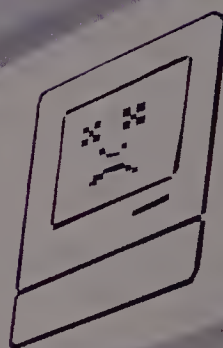
Benefits

- Transform scanned photographs and other bitmapped images into fine art
- Custom settings can be applied to later images for consistent and reliable results
- Easily customize each effect for thousands of variations to attain the results you want
- See results before you apply them, saving time and encouraging experimentation
- Apply the effects direct from within graphics programs
- Open images, apply the effects, then save and print the results without any other program
- Work with high-quality image files from popular graphics programs
- Improve the quality of your image before applying any effect

UTILITIES

SNOOPER

LETS YOU FIND THE PROBLEM



\$124

Snooper

#05025 ✓

Snooper w/NuBus Card

#05026 ✓ \$164

Diagnostic Software for Macintosh

The next time you see a 'sad Mac' on your screen or your Mac's performance isn't up to par, **DIAGNOSE FROM YOUR DESK** with SNOOPER, the revolutionary new standard for Mac diagnostic and testing tools. SNOOPER performs a comprehensive suite of tests, **CHECKS ALL YOUR HARDWARE** and identifies any problems. And the same SNOOPER software runs on all Macs.

SNOOPER is easy to use and saves time and money. If you already own Norton Utilities, complete your Mac utilities with the hardware diagnostic.

VIDEO TESTS • BENCHMARKS • LOOPBACK CONNECTORS • RAM TEST • SYSTEM TESTING
• SCSI TESTS • I/O TESTING • AUDIO TESTS • ERROR LOGGING



**ORDER BY 2 A.M. WEEKDAYS
FOR SAME DAY DELIVERY**



Get the Most Out of System 7 With Super 7 Utilities

1 Mighty Menus:

Are tear off menus which are available to you from any application including the Finder.

2 Printer Picker:

You'll select your printers from one, handy pull-down menu.

3 Super Comments:

Displays Get Info comments in Open dialogs and lets you create Get Info comments in the Save and Save As dialogs.

4 Desktop Extras:

Allow you to move or copy a file, folder or group of files and folders to a destination folder without opening up all the folders, thus saving time and eliminating desktop clutter.

5 Trash Alias:

Automatically deletes aliases of applications, files or folders when those files are emptied from the trash. This utility alone can save you hours of frustration and confusion.

6 Helium Pro:

Lets you toggle Balloon Help on and off with quick keyboard commands.

7 Speed Beep Pro:

Allows you to customize the warning tones generated by your Mac.

Environmentally-Responsible Software: Atticus Software is one of the first companies to provide a return envelope so that customers may return the folding box and cardboard liner for re-use. Extra consideration has been given to the package to minimize waste. All materials are recyclable.



Super 7 Utilities.....\$62

This collection of seven vital performance enhancement utilities exclusively for System 7 makes your Mac more powerful and productive than ever. Each utility is easy to install and use. Atticus Software #05679

Atticus Software provides FREE and unlimited technical support for registered users. Support personnel can be reached via telephone, fax and America OnLine and CompuServe information services.

7 Super Reasons To Switch To System 7

3 File Sharing:

If you're part of a network, you can share any folder or volume on your hard disk with other users—without using a dedicated server!

4 Better Font Handling:

Apple's new scalable-font technology is now built into every Mac, giving users the benefits of smooth type at sizes from 1 to 32,768 points, on-screen as well as on paper.

5 Aliasing:

Imagine that you could keep every file from every disk, cartridge and network server you have access to—on *your* hard disk. Imagine that you could arrange your work by date, topic, application, file name—all at the same time.

6 Finder Windows:

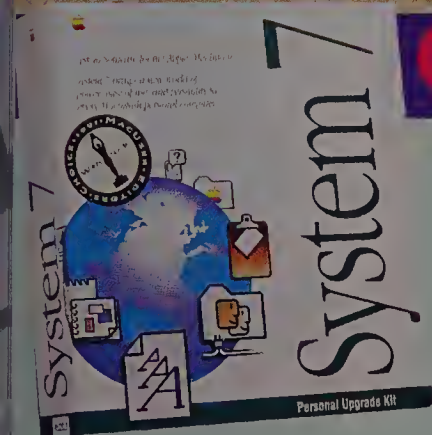
Organizing and accessing files is *much* easier with System 7.

Super 7 Utilities • System 7—Bundle

Now you can purchase both super-productive programs for one incredible low price. If you're not running System 7 and Super 7 Utilities, you're not getting the most from your Mac. This offer will last for a limited time, so order today! Our Mac sales advisors are standing by at 1-800-248-0800. #05758

7 Balloon Help:

Point to any element in any application and click. Balloon help tells you what it is and how it works!



System 7.0 Personal Upgrade\$78

#05433

1 Multi-tasking:

If you haven't been using MultiFinder, the gentle push of System 7 will introduce you to the world of doing two or more things at once. With System 7 you can always open more than one application at a time!

2 Publish and Subscribe:

"Publish" part of your document (graphic, chart, text...) to one or several other documents. When you change the original, the others will update automatically!

CALL 1-800-248-0800

DAYSTAR ACCELERATION

Get High-Performance Speed From DayStar

Universal PowerCache Accelerator

Spend more time working, less time waiting. The PowerCache gives you the speed you need. It offers the best combination of blazing speed (up to 3 times faster) and low cost. Rated as the best accelerator by leading industry editors, it's the only accelerator guaranteed 100% compatible with all software and hardware—even at full speed! The universal PDS design supports over ten different Mac platforms (inexpensive adapter required for non-IIci installations). ✓✓



33MHz PowerCache

#04634 with 68882 \$744 ✓✓
#04323 without 68882 \$598 ✓✓

40MHz PowerCache

#04319 with 68882 \$818 ✓✓
#04320 without 68882 \$998 ✓✓

50MHz PowerCache

#04322 with 68882 \$1448 ✓✓
#04321 without 68882 \$1178 ✓✓

Cache Adapters \$44

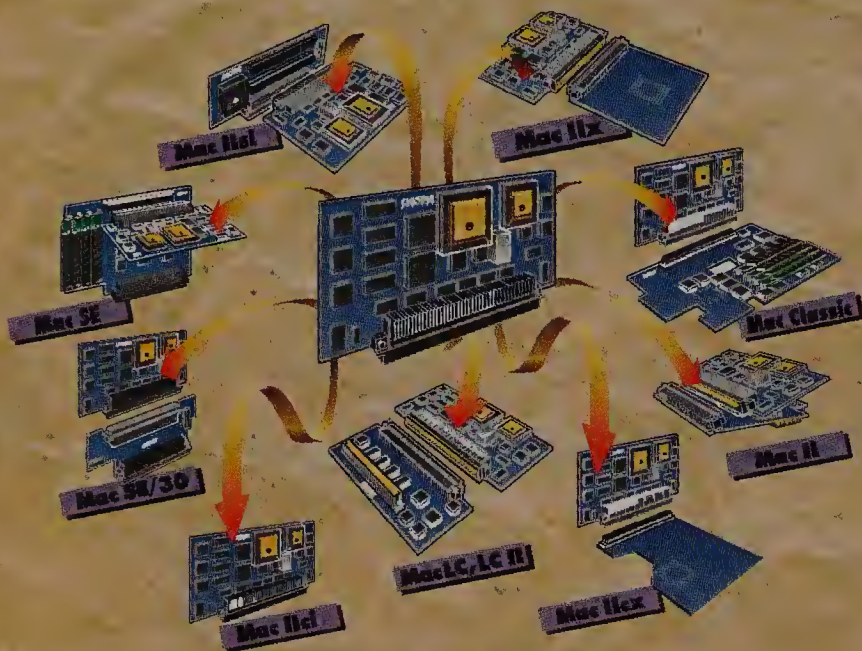
#04708 Cache Adapter SE/30 ✓✓
#04709 Cache Adapter II ✓✓
#04710 Cache Adapter IIX ✓✓
#04711 Cache Adapter IICx* ✓✓
#04549 Cache Adapter LC ✓✓
#04707 Cache Adapter IISI ✓✓
(no adapter needed for IICI)

*IICx price includes socket installation

\$99

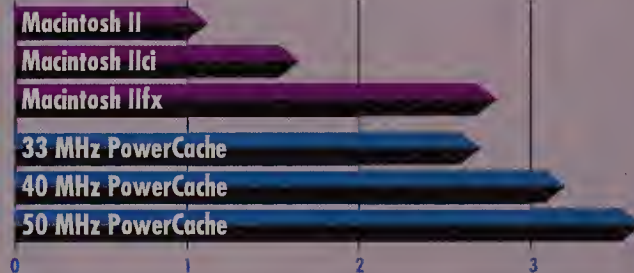
UPGRADE

to 68040 performance. Buy a 50MHz Universal PowerCache w/68882 before November 31 and upgrade to Daystar's new 33 MHz 68040 accelerator any time during 1993. Direct from DayStar



HOW MANY TIMES FASTER DO YOU WANT TO GO?

Get the speed you need in your SE/30, LC, LC II, II, IIX, IICx, IISI, or IICI.



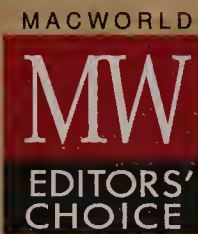
All speeds are shown in times faster than a Mac II. Performance gains are averaged from standard Mac applications.

NEW PRODUCT

SE 30 PowerCache 33/40/50MHz

Now you can have it all! The new SE/30 PowerCache offers blazing performance, and it leaves your PDS connector free for other expansion cards. Plus, DayStar will even install it... FREE!

#05720 SE/30 PowerCache 33	\$608
#05802 SE/30 PowerCache 33	\$748
#05721 SE/30 PowerCache 40	\$844
#05803 SE/30 PowerCache 40 w/ FPU	\$1028
#05722 SE/30 PowerCache 50	\$1218
#05804 SE/30 PowerCache 50 w/ FPU	\$1498



Extended Shipping Hours

Orders Placed By 2 a.m. E.T.
Ship Immediately

Weekdays via Airborne Express for only \$3!

Same Day Delivery

Place Your Order between 12-2 a.m. E.T.
Weekdays

DAYSTAR
DIGITAL

The Mac
Zone
Established 1986

Lab Notes

Stretching a PowerBook's Battery Life

BY MARK HURLLOW

IN THE COURSE OF TESTING APPLE'S new notebook computers and comparing them with older PowerBooks (see "New PowerBooks: The 145, 160, and 180" and "Apple's Dynamic Duo," this issue), I got a rude awakening. After less than 45 minutes of use, my PowerBook 170 battery suddenly went kaput—so much for the two-hours-of-use theory. While many new battery-stretching technologies are being developed for future generations of Macintosh notebook, there are also a number of techniques that PowerBook (and Duo) owners can use now to squeeze as much as an extra hour or so from their batteries.

Running Low and Slow

POWER CONSUMPTION is proportional to processor speed; the slower the speed, the less power is consumed. The transistor inside the microprocessor consumes the most power when it's switching off or on. When the processor slows down, less switching occurs, lowering the chip's overall power consumption. All PowerBooks (and Duos) except the 100 and the 140 have a battery-saving mode called Power-Saver, under the Battery DA, which drops the processor's speed from 33MHz or 25MHz to 16MHz—fast enough for most applications.

Connectix PowerBook Utilities (CPU) from Connectix Corporation (415/571-5100, 800/950-5880; fax 415/571-5195) gives you the most control over power consumption—more than Apple's own Battery DA. For example, Connectix PowerBook Utilities gives you a better indicator of the battery's charge.

The PowerBooks' and Duos' Portable control panel has a Rest feature, which puts the processor in dormant mode after 2 seconds of inactivity. After 1/60 of a sec-

ond, the processor wakes up and looks for events waiting to be handled (such as keyboard input or mouse clicks); after another 2 seconds of inactivity, it goes back to sleep again, repeating the cycle. However, be aware that the Rest feature might slow down an application when it is doing useful work. CPU lets you customize the rest period to suit your own needs.

Power consumption also varies with the input voltage to the processor. All current PowerBook and Duo processors run at 5 volts. A reduction to 3V (equal to the voltage of the Intel and AMD 80386SL processors) would cut the processor's power consumption between 30 percent and 50 percent.

By the mid-1990s, we can expect 2.4V microprocessors and associated chip sets, which will decrease power consumption by another 20 percent. Motorola is said to be working on a low-voltage 68040 chip, which should be available soon. Reducing the voltage provides an added benefit: since low-voltage chips do not heat up as much as those running at a higher voltage, low-voltage chips have a longer life span.

reducing the voltage provides an added benefit: since low-voltage chips do not heat up as much as those running at a higher voltage, low-voltage chips have a longer life span.

The Miniaturization of Mass Storage

JUST AS VOLTAGE AFFECTS THE processor's efficiency, it's also an issue with hard drives. In the near future, drives will be available with lower-voltage options, most likely a 3V/5V hybrid. (We probably won't see a drive that's completely 3V-driven, since spinning up the platter would require more power than a 3V source could supply.)

The size of a hard drive is also closely related to power consumption. Reducing the size of the platter (and thus its weight)

continues



HANK OSUNA

FROM THE MAKERS OF AFTER DARK

STAR TREK THE SCREEN SAVER

Captains Log: Stardate 1992



On our mission to prevent phosphor burn-in...

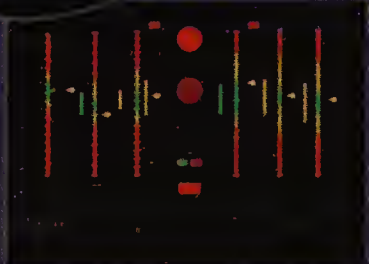


...we found ourselves surrounded by Klingons!



I asked Mr. Spock and Dr. McCoy for a full diagnosis.

Bones said the problem was burn-in, and a new screen saver was the answer.



So we beamed some tribbles into the Klingon engine room and headed for Earth to pick up a copy!

Over 15 all-new displays inspired by the original Star Trek TV series. And, it runs all After Dark displays! Now your monitor will "LIVE LONG AND PROSPER"™ with Star Trek: The Screen Saver.

STAND ALONE PRODUCT
After Dark Software Not Required

BERKELEY
SYSTEMS



2095 Rose Street, Berkeley, CA 94709 (510) 540-5535

© & ©1992 Paramount Pictures. All Rights Reserved. STAR TREK is a Registered Trademark of Paramount Pictures. Berkeley Systems Authorized User.

Circle 218 on reader service card.

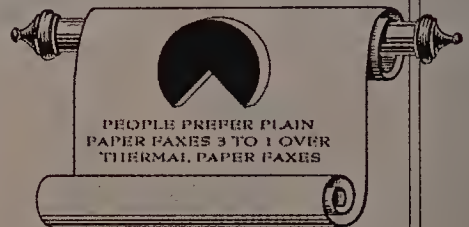
Only one printer can give you this fax.



Our goal at NEC is the complete integration of computers and communications. The Silentwriter Model 95fx is just one of many innovative products that help us to realize this goal. For example, we not only developed the first notebook computer with a built-in phone and fax, we make satellite dishes capable of sending data worldwide.



nce upon a time, all faxes looked the same. *Bad.* But with the Silentwriter® Model 95fx multifunction printer/fax, nothing gets lost in the transmission. Imagine PostScript™ language-quality faxes from your printer. It's no fairy tale. Now you can send and receive documents in all their original glory. You'll see beautiful fonts and graphics with none of the dirt and glitches, the jaggies and imperfections, that can turn a wonderful story into a tragedy. Why send a facsimile when you can send an original? Get the NEC Silentwriter Model 95fx multifunction printer/fax and live happily ever after.



The End

Actual facsimile generated from a Silentwriter Model 95fx.



Computers and Communications

To upgrade your existing Silentwriter Model 95 printer with fax capability (U.S. only), or for more information

And these facts.

1

A state-of-the-art 6 PPM laser printer equipped with the latest in Mac® and PC® printer software support—Adobe's PostScript™ Level 2 and HP's PCL5.

2

Send and receive faxes in either conventional or PostScript-language formats anywhere in the world.

3

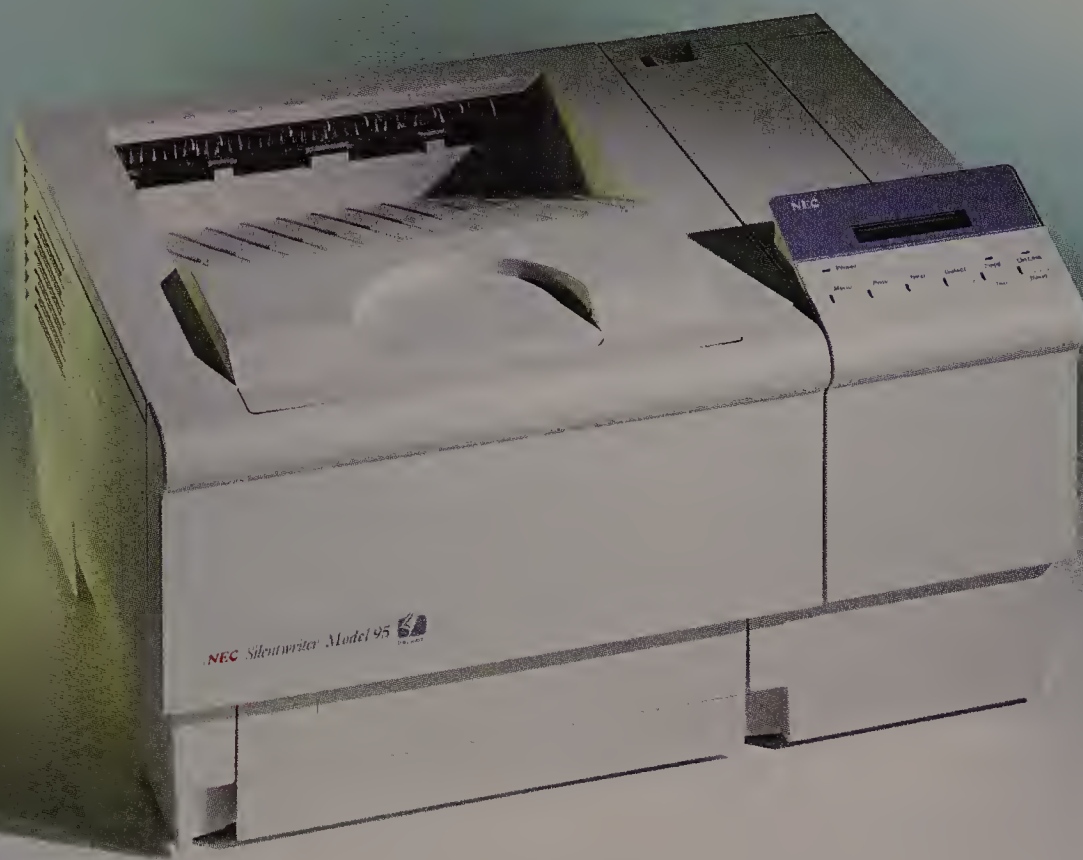
Patented Sharp Edge Technology delivers 600 DPI-equivalent clarity in a 300 DPI class.

4

Ideal for shared use. Automatic interface switching supports both Macs and PCs simultaneously.

5

Under \$2,349 (MSRP). Far less than you'd pay for any printer/fax multifunction combination. If you could even find a comparable product.



The Silentwriter Model 95fx Printer/Fax

Because ↑ is the way you want to go.

NEC

About the Silentwriter Model 95fx, call NEC at 1-800-388-8888.

Circle 180 on reader service card

Source for pie chart info: World Custom Study, August 1992. Silentwriter is a registered trademark of NEC Technologies, Inc. All other trademarks and registered trademarks are the property of their respective owners. © 1992 NEC Technologies, Inc.

TRY BEFORE YOU BUY

Making the right purchase decision is always difficult — without the facts it can be impossible. Now you can "kick the tires" before you buy with *The Macworld Resource CD™*.



The Resource is a high-tech consumer toolkit with trial software, product demos and printable information from top Macintosh® hardware and software companies.

The Resource Features:

- **Tech Report:** The first QuickTime™ "TV Program" — a 30 minute interactive show on the latest technology trends.
- **Productworld:** Your interactive consumer toolkit. Get detailed product literature; run interactive demos; get "hands-on" with trial software.
- **The Directory:** An up-to-date, comprehensive database of thousands of Macintosh products.

If you buy Macintosh products, *The Macworld Resource CD* is a must-have. Take advantage of the charter subscription offer and save.

MW1192

Special Charter Subscription Offer

- ☐ YES! Please send me a one-year (4 quarterly CDs) *Macworld Resource CD* subscription for only \$49.95.
- ☐ YES! Please send me the Fall '92 edition of *The Macworld Resource CD* for only \$19.95.

Name _____

Company _____

Address _____

City/State/Zip _____

Telephone _____

☐ Payment Enclosed ☐ M/C ☐ Visa

Card Number _____ Exp. Date _____

Signature _____

TO SUBSCRIBE

Call 1-800-845-1924 or clip coupon and return to:

Macworld CD Ventures,
501 Second Street, San Francisco, CA 94107.

GA, NJ, CA and IL residents add applicable sales tax.
Special shipping and handling: Mexican residents add \$5 for single issue order and \$20 for one-year subscription.
Canadian residents add \$5 plus \$1.75 GST for single issue order and \$20 plus \$4.90 GST for one-year subscription.
Foreign residents add \$12.50 for single issue order and \$50 for one-year subscription.

means less energy is required to spin the platter; thus less power is consumed. For example, the PowerBooks have a 2.5-inch drive, which uses considerably less power than the old Mac Portable's 3.5-inch drive. Even smaller drives are now available. A 1.8-inch model consumes less than half the power required for a 2.5-inch drive. Even more frugal is Hewlett-Packard's 21MB 1.3-inch Kitty Hawk, which weighs less than 1 ounce and consumes only an eighth the power required by a 2.5-inch drive. Although not yet available for the Mac, within a year or two the Kitty Hawk may debut in a SCSI version with a higher storage capacity.

A future option for mass storage—either as an alternative or as an addition to a hard drive—may well be flash memory, nonvolatile memory that's similar to SRAM (static RAM). A flash memory card would consume 20 percent less power than the Kitty Hawk. Unlike SRAM, flash memory requires no battery backup and, because its silicon area is a quarter the size of similar capacity SRAM, flash memory is less expensive. Its main disadvantage used to be its 12V/5V power requirement—12V is required for writing and erasing the memory. However, 5V flash memory cards with 2.5MB to 40MB capacities are now available, and 3V cards should be soon. As a mass storage medium, flash memory is much more expensive than a hard drive. But just as the cost of RAM has plummeted to a record low, flash memory prices should drop dramatically within the next few years.

Improved Battery Technology

ANOTHER IMPROVEMENT YOU CAN EXPECT to see in the near future lies with the power source itself—the battery. Nickel-cadmium batteries (NiCd) have been the batteries of choice for notebooks and portables, but the NiCd does have a minor flaw: a phenomenon known as *memory effect*. If the battery is not sufficiently discharged before being recharged and is repeatedly discharged to that same insufficient level, eventually the battery may send slightly less voltage to the PowerBook when it reaches that level. Fooled into believing that the battery doesn't have enough operating power, the PowerBook warns that it's time to recharge and threatens to shut down. Much more prevalent with older NiCd batteries, memory effect rarely occurs with PowerBook NiCd's because of their improved technology. Still, to ensure maximum usage, you should sufficiently discharge your battery every few months by using the PowerBook in the least-efficient mode (turn the brightness all the way up, keep the disk drive spinning, avoid sleep mode).

Or use CPU's Quick Discharge feature, which drains the battery as quickly as possible while you're working.

The nickel-cadmium's new competitor is the nickel-metal-hydride (NiH₂) battery, which is used in the PowerBook Duos. Apple claims an NiH₂ can last up to four and one-half hours. Although the NiH₂ is more expensive than the NiCd battery and requires a more-complex recharging circuit, it has a better power/weight ratio than the NiCd.

The Future Looks Brighter

BACKLIGHTING THE POWERBOOK'S screen is what draws the most power. To minimize power consumption, keep the screen dimmed to a comfortable level. Both CPU and the shareware utility Backlight Control give you control over the backlight setting. Avoid desktop patterns with many black pixels or solid dark areas, which require more backlighting. Before you turn up the brightness, try adjusting the contrast instead.

The higher the efficiency, or brightness, of the PowerBook's fluorescent tubes, the less power is needed to light the screen. Brightness capabilities have improved dramatically since 1990, when the brightness level of a single fluorescent tube was only 140 candela per square meter (Cd/m²). Only two years later we have now seen brightness levels as high as 450 Cd/m². Landmark Technology, a company based in San Jose, California, specializes in backlighting design and already has 700-Cd/m² fluorescent tubes working in its lab.

A Lease on Battery Life

LOW-VOLTAGE PROCESSORS, FLASH memory boards, and brighter LCD panels may be the hope of the future, but they won't help you get more juice out of your current machine. So what else can you do to prolong your battery's life right now?

One power-saving technique is to eliminate as much disk access as possible. Use a RAM disk—preferably one that maintains its content when you shut down the computer; and avoid virtual memory—it requires excessive disk access to swap data in and out of the hard drive.

Remember to quit your telecommunications program when you're not using it; the modem port—like every other PowerBook component—is a power consumer too.

If you're using your PowerBook in battery mode, put it to sleep whenever it's idle for more than a few minutes.

And finally, use your AC adapter as often as possible; you'll be guaranteed a charged battery when you're ready to take it on the road. **m**

Circle 283 on reader service card

For the latest
breakthrough in
multimedia,
turn the page.

M No matter what you want to do with multimedia, we've got the products to do it. From dynamic business presentations to full-scale productions and interactive training. For the Macintosh, of course. For Windows, too.

Take one glance to the right, and you'll see what we mean. What you can't see, however, is how all our products work together to make your job easier.

How they complement each other so you always have the best tool on hand for the task at hand.

MacroModel, for example, is the hottest new tool for building accurate 3D objects.

While *MacroMind Three-D* is the tool of choice for adding animation and photorealistic rendering to those same 3D objects.

ClipMedia gives you digitized video, animations, graphics, music and sound to use in your productions.

And *MacRecorder* is famous for helping you sample and customize sounds of your own.

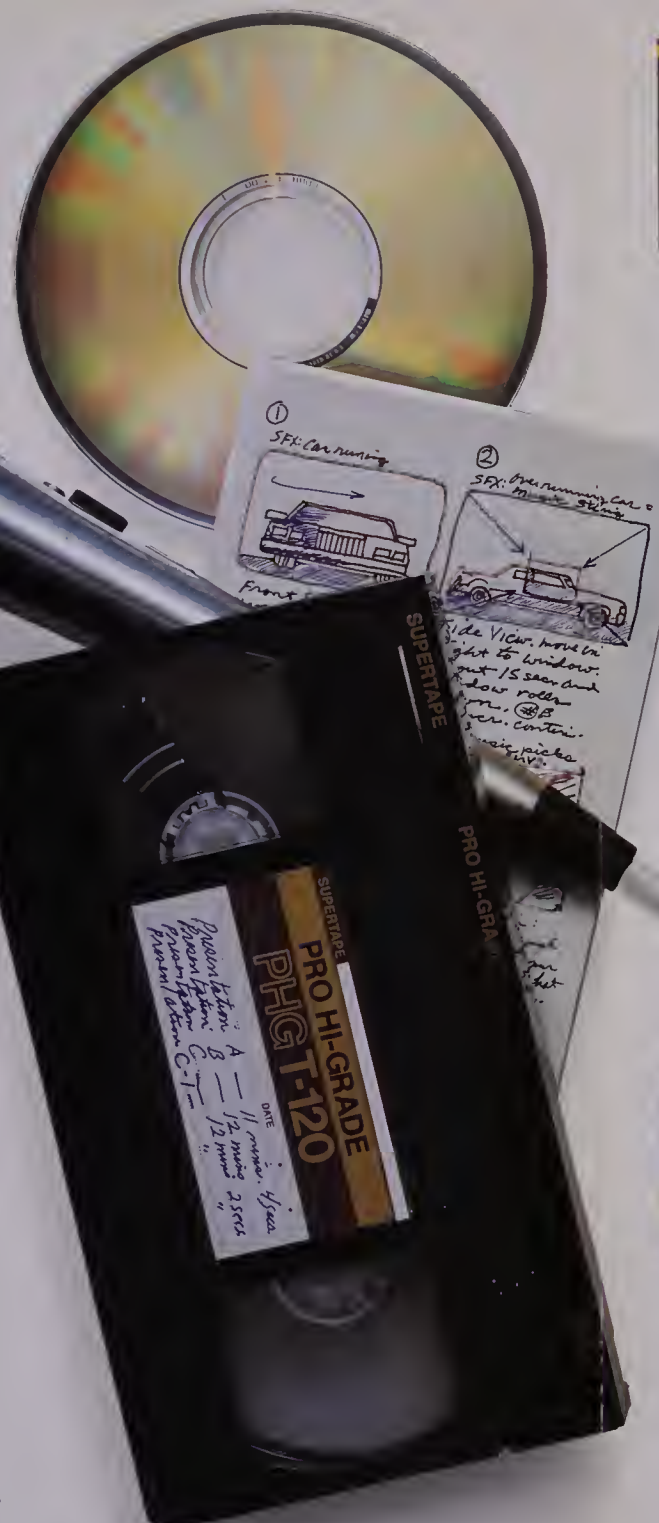
Pull it all together with *MacroMind Director* or *Authorware Professional* and you can create some of the best interactive productions and learning applications known to Mankind.

(Not to mention play them back—not just on the Mac—but on Windows and SGI IRIS, too.)

Now, for some of the best *deals* known to Mankind, check out this month's special offers on new products, new bundles and upgrades.

Then give us a call today at 1-800-288-0571 ext. 47. And get all the latest.

Call for Entries: Enter and Win an INVISION Multimedia Award!
This special awards program recognizes and honors organizations and individuals who advance the use of multimedia through innovative business, government and education applications. For more information, call NewMedia Magazine, (415) 573-5170.



3D MODELING

MacroModel™ The first Macintosh 3D modeling program that combines the CAD-accuracy of spline-based modeling with familiar 2D drawing tools. Start with 2D objects, and extrude, lathe, sweep or skin them into 3D objects. Provides real-time visualization from any angle for instant, intuitive feedback. Supports

System 7 and 32-bit color. Imports and exports polygon-based objects for compatibility with other modelers like *Swivel 3D*. Supports DXF for CAD compatibility; PICT for DTP. Add photorealistic rendering and 3D animation with *MacroMind Three-D*. Render still images with Pixar *MacRenderMan™*. Export images into *Authorware Professional* applications or *MacroMind Director* productions. *Version 1.0. Suggested list, \$1495.*



3D MODELING

Swivel 3D™ Professional 2.0

Create, rotate, scale and animate 3D models with this complete modeling and design environment. Hierarchically link object parts. Export 3D views and animation sequences. *Swivel 3D* models are compatible with *MacroMind Three-D* and *Director* for advanced animation and rendering of 3D models. Supports 24-bit color, full screen display, Pixar *MacRenderMan™* output, AutoCAD™ DXF output, Adobe® Illustrator® EPS, PICT and PICS files. *Version 2.0. Suggested list, \$695.*



PRESENTATIONS

Action!™ Macintosh 1.0

NEW! Designed for business users rather than multimedia professionals, this easy-to-use tool helps you create dynamic presentations and demos complete with in-scene animation, motion, sound, text and graphics. Features 120 professional presentation templates, scene interactivity via buttons, 39 preset scene transitions, and a Scene Sorter. Supports 32-bit color and System 7. Control timing and flow with a simple timeline, instant links and buttons, and a VCR-like control panel. The best tool for presenting from your Mac. Also available for Windows. *Action! Mac Version 1.0. Suggested list, \$495.*

Action! for Windows 2.0

The original *Action!*, winner of 1991 MVP and Reader's Choice awards, with all the same easy-to-use features as the Macintosh version. *Version 2.0. Suggested list, \$495. Upgrade for just \$79.*



3D MODELING

ModelShop II™ ★★★★★ 1/2

Create and manipulate realistic spatial models with this completely interactive design and presentation tool. Quickly create models in hidden surface perspective with CAD-like accuracy. Allows real-time walk-through of architectural models, landscapes and visualizations. Add professional-quality animation and photorealism with *MacroMind Three-D*. The perfect tool for architects and design professionals. *Version 1.2. Suggested list, \$895. Includes QuickPics, free, a \$149 value!*



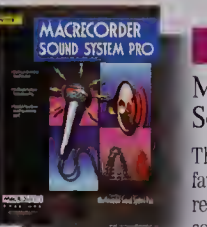
AUTHORING

MacroMind Director® 3.1

NEW VERSION ★★★★★

The leading animation and authoring tool for high-impact multimedia productions. Create, combine and synchronize graphics, text and animations with audio and video. Add full interactivity with buttons and scripts. Author, edit, playback, export and import QuickTime movies. Add interactivity to QuickTime movies with enhanced Lingo scripting. New expanded Help, increased Score functionality, and higher performance. Incorporate 3D models from *Swivel 3D*, animation from *MacroMind Three-D*, sounds from *MacRecorder* as well as all standard Mac file formats. Includes *Macintosh Player* for license-free production distribution, and *Accelerator*, a \$195 value, for smoother animation playback. *Version 3.1. Suggested list, \$1195.*

Director Players Convert fully interactive *MacroMind Director* productions created on the Macintosh™ for playback under Microsoft® Windows™ or Silicon Graphics IRIS workstations with complete interactive control of CD-Audio and digitized sound. Includes a license-free distribution policy for projectors. *Windows Player Version 1.2, \$995. MacroMind Player for Silicon Graphics IRIS Workstations, Version 1.0, \$995.*

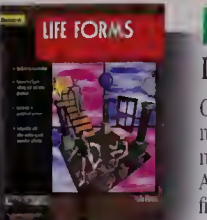


SOUND

MacRecorder® Sound System Pro

The industry favorite for sampling, recording and editing sound to spice up multimedia productions, Hyper-

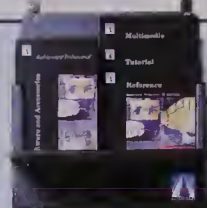
Card stacks, even E-mail. *SoundEdit™ Pro*, an all new version of *SoundEdit*, includes an enhanced user interface, unlimited multiple tracks, play and record from disk, the ability to save sounds in 8- or 16-bit format at rates up to 48KHz, and more. *SoundEdit Pro*, software, \$295. Requires 68020 or greater CPU. *MacRecorder Sound System Pro* (includes digitizing hardware and software), \$349. Upgrade for just \$75.



3D ANIMATION

Life Forms™ ★★★★★ 1/2

Create sophisticated human motion animations with this new, easy-to-use package. Access shape libraries of figures in sitting, standing, jumping, sports and dance poses, and more. Life Forms automatically creates smooth human motion between any two positions you define. Add natural human motion to *Swivel 3D*, *MacroMind Three-D* and *Director* productions. Save motion sequences as QuickTime™ movies. *Suggested list, \$495.*



AUTHORING

Authorware® Professional for Macintosh ★★★★★

The premier multimedia authoring software for training and education. Visual programming allows non-technical users to build applications without scripting. Eleven design icons provide full authoring functionality and a powerful development platform. Full range of multimedia tools help you incorporate text, graphics, sound, animation and video in applications. Imports 3D models from *Swivel 3D*, animation from *MacroMind Director* or *Three-D*, sounds from *MacRecorder*, as well as all standard Macintosh file formats. Runtime module lets you publish and distribute applications. *Version 1.7, \$7995.**

Authorware Professional for Windows
The same professional authoring tool for Windows-based developers. Converts *Authorware Professional* for Macintosh files seamlessly. Imports AutoDesk animations. *Version 1.1, \$7995.* Upgrade for just \$249.*

*Call for special education and developer pricing.



3D ANIMATION

MacroMind Three-D™

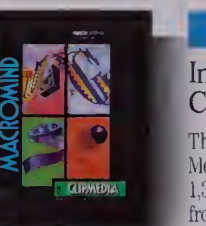
A professional tool for creating high-quality 3D animations and photorealistic images for use in video and multimedia productions. Imports a wide range of 3D model file formats and provides a hierarchical time-line for easy animation of unlimited shapes, lights and cameras. Directly import models from *MacroModel* or *Swivel 3D* and export animations to *MacroMind Director*. Supports video animation controllers, image special effects (bump and texture maps, shadows, etc.), 3D text from TrueType™ fonts and *RenderMan™* RIB. *Version 1.2. Suggested list, \$1495.*



VIDEO

MacroMind MediaMaker™

New QuickTime Version! Assemble and synchronize video, CD-Audio with Macintosh graphics, sound, animation and QuickTime movies to create custom video productions. Play multiple sound channels at the same time. System 7.0 compatible. Supports *Director 3.1*. Fully automated Print-to-Video command allows accurate, easy output to videotape. *Version 1.5. Suggested list, \$695. Upgrade today for just \$95! Add animated titles and credits to MediaMaker videos with MacroMind TitleMaker™, \$149.*



CLIP MEDIA

Industry at Work, ClipMedia™ 2

This newest addition to our ClipMedia collection features more than 1,300 high-quality, royalty-free clips from aviation, computing, defense, education, finance, manufacturing, medicine, purchasing, retail and telecommunications and other major industries. Includes 500 sound effects, 150 animations, 35 music pieces and 700 graphic elements. Available on CD-ROM for Macintosh and Windows users. Mac version includes digital video and animation saved as QuickTime movies in addition to PICS. *Industry at Work, ClipMedia 2. Suggested list, \$295. Also available: Business & Technology, ClipMedia 1. Suggested list, \$395.*

SwivelArt™ 3D Clip Graphics

Viewpoint Cars.....	\$250
Maps 1.....	\$250
Maps 2.....	\$250
Graphics Original.....	\$129.95
Viewpoint Air and Sea.....	\$250
Viewpoint Anatomy.....	\$250

Integrate these royalty-free, ready-to-use Swivel 3D models into multimedia productions and print publications.

Save 25% On New MacroModel Bundles.



MacroModel and MacroMind Three-D

If you want to create animated 3D models with photorealistic rendering, this bundle for you. You get the new *MacroModel* 3D modeling package plus *MacroMind Three-D*, our unsurpassed 3D animation and rendering tool. A must for professional animators and multimedia artists. Regularly \$2495. Now just \$1871!



MacroModel and Pixar® MacRenderMan™

The perfect pair of products for creating photorealistic 3D still-lives. Build your 3D model starting with *MacroModel's* easy-to-use drawing tools, and add surface texture and lighting with *MacRenderMan*, the professional's choice for rendering static 3D images. Regularly \$1795. Now just \$1346!

ORDER NOW AND SAVE
1-800-288-0571 Ext. 47

MacroModel.

A whole new approach to 3D modeling.

As of right now, you can forget anything you ever knew, or even *thought* you knew about 3D modeling on the Mac. And get to know MacroModel.

If, for example, you thought 3D modeling was too big a leap from 2D graphics, you're in for a big surprise.

Or, if you're already into 3D but have found a striking lack of accuracy in other Mac modelers—you, too, are in for a big surprise.

Because MacroModel does what no 3D modeler has ever done before.

It combines all the numerical, "snap-to" accuracy you'd ever need for CAD with a simple user interface that'll never bog you down.

How did we accomplish such a feat?

By starting from scratch and writing a new core technology that models curved surfaces with accurate splines instead of imprecise polygons.

And by building a brand-new front end that lets you design *and* edit in 2D—with familiar graphics tools—and move in and out of 3D space in an instant.

Ready to know more? Then turn the page.

You'll find all the details on MacroModel.

Plus a whole lot of good news about our full family of professional multimedia tools.

M
MACROMEDIA



BEHIND THE SCENES AT MACROMEDIA



Young Harvill—artist, holographer, virtual reality inventor, and Director of 3D Product Development—talks about Macromedia's newest 3D modeling package and how it lives up to the design team's original ideals.

What did you set out to do in designing MacroModel?

We wanted to create a modeling environment that was as easy to use as Swivel 3D, as fast as Swivel 3D, but very accurate and capable of doing anything from concept design through CAD.

We also wanted to build a core technology that would last five to ten years, that would be a key part of the technical equity of the company.

How is MacroModel more compatible with CAD than other modelers?

The accuracy is very important. So are CAD functions like 2D and 3D snapping, being able to snap to exact geometry.

That's a main difference between Swivel 3D and MacroModel. With Swivel 3D, pretty much all the modeling is approximate—it's great for presenting concepts—but with MacroModel you can actually start with a plan or drawing and by typing in numbers and snapping to points, come up with an exact representation of your object.

That you could then use to pass on to manufacturing?

Yeah, you could use it to develop a comprehensive set of drawings for engineering or to go out through DXF to a CAD/CAM environment.

What do you mean by 2D and 3D snapping?

That MacroModel is very similar to [Adobe] Illustrator and other illustration programs, in that you're always drawing on a 2D surface that's called the working plane. Most often that plane is flat on the screen, but you can place the plane anywhere in the world, say at an angle or on top of a building, and extrude a water tower, or whatever you like, in that plane.

The plan was to give people who are familiar with 2D CAD and illustration programs all of the tools they're used to using on 2D surfaces, but once they start extruding or sweeping they can jump off into the third dimension.

I think we've been pretty successful at it.

Now, for rendering, you'd really want to use Three-D or MacRenderMan, right?

That's true. MacroModel's rendering is what I'd call a draft-to-good quality rendering. For the real high-quality photorealistic rendering you'd want to go to [MacroMind] Three-D for animated rendering, or to [Pixar] MacRenderMan for still-life rendering.

You hear a lot about modeling speed. How fast is MacroModel?

Well, one of the main things we tried to achieve was to have smooth-shaded hidden-surface images of objects be updated in a reasonable time as you model them. Basically we had to write a highly optimized renderer.

Just to give you an idea, right now we're essentially comparable with the speed of Swivel 3D, so we're rendering about 1,000 polygons per second on a IICI. And on a Quadra, just in terms of the interactivity and responsiveness of the edit, we're approaching a Silicon Graphics Personal IRIS kind of speed.

So Swivel 3D and MacroModel are both modelers with roughly the same speed...

Yeah, that's right. But they're pretty much different tasks—going from concept modeling [Swivel 3D] to having a real numerical model with curved surfaces [MacroModel] to prepare for CAD or working drawings, or to use in animations.

What we're seeing is that people who want to graduate from display modeling to models that have real dimensions—if they're trying to model real products, or extremely large worlds, if they need curved surfaces—then they move up to MacroModel.

And MacroModel does spline-based modeling rather than polygons. What's the advantage?

Polygons are fine to model flat surfaces. But if you have objects with curved surfaces, the advantage to representing them with curved surfaces—splines—is that you can render at various levels depending on how much time you have or how much update speed you want.

In the long run, representing

curves as polygons is just an approximation. It's not accurate.

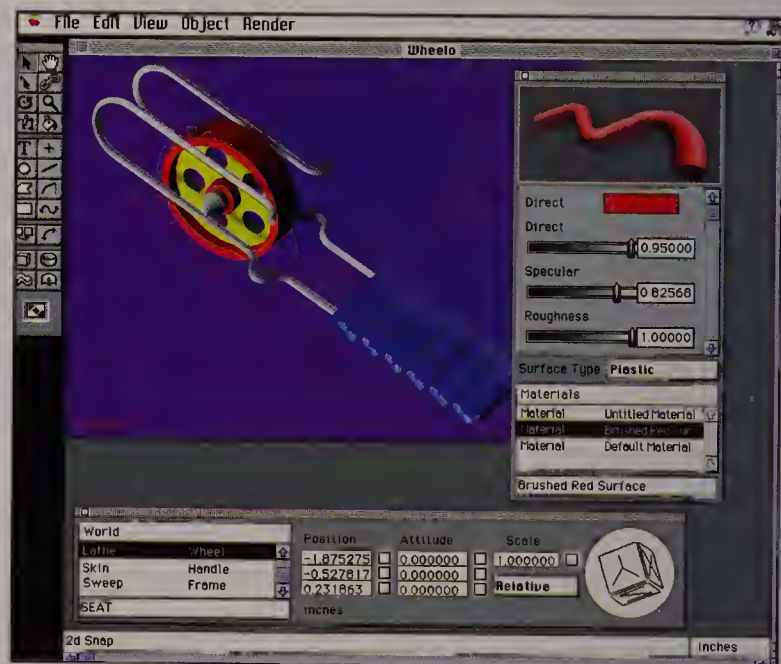
What do you love the most about MacroModel?

The thing I enjoy as a user is that when you create an object, MacroModel remembers how you created it. So if you make a Bezier line or put out a letter that has an Illustrator-like outline and then extrude it, MacroModel doesn't forget that you extruded it from this profile.

So you can go back and edit the original object and the extrusion changes too?

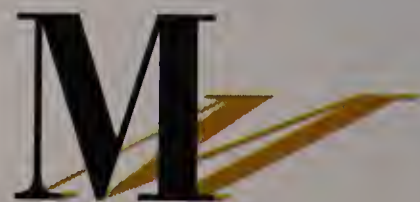
That's right. That was a goal we had at the beginning—and we kept it for all the different object types—that you can go back and edit the defining geometry and get updates in a reasonable time.

Other things I like are all the neat user interface things like the track ball interface, the browsers, and the numerical updating. I think it worked out really well. I think people are going to be jazzed.



Does anyone else do all this?

They're beginning to. But this is the sort of stuff you have to do at the beginning—you can't go back and add it on. So I think a lot of our competitors, once they see this, are going to have to go back and rewrite everything.



MACROMEDIA

An Interview with Manny Menéndez

BY JERRY BORRELL

MANNY MENÉNDEZ, THE president of Deneba Software in Miami, was born in Cuba. In 1962, at the age of four, Menéndez and his two-year-old sister emigrated alone to the United States because Cuban officials refused to allow his parents to leave the country. Eventually his mother left Cuba on a plane; somewhat later his father escaped from Cuba on a 16-foot sailboat. After the family was reunited, they moved to Puerto Rico, where Menéndez grew up. At age 18 he moved to Miami, where he finished high school and began college. There he studied electrical engineering.

MW How did you meet your partners?

Menéndez While working at Kendall Computers in Miami I met Joaquin de Soto and George Miranda. They were in college, too, selling part-time. We became friends. Computers were a hobby for all of us—we sold computers, we owned them.

MW How and why did you get started as a developer?

Menéndez The three of us had Macs early on and saw a need for software, but we saw no software coming. At Kendall, we saw betas from everyone who was writing software. People called us and asked for spell checkers, databases. By 1985 there was only a handful of software packages available.

MW When did you actually start development on your first program?

Menéndez Beginning in March of 1984, we worked on a spell checker. The problem was that you had to buy a Lisa. There were no compilers or developer tools that ran on the Macintosh at that time. You had to buy a Lisa and develop on it for the Mac.

MW Then how did you develop your first product?

Menéndez In the beginning of 1985 we were using Forth, since we had no money for three \$10,000 Lisas, which slowed us down. Then Bill Duvall released Consulair C. We were really ex-

cited. We bought the compiler for \$500 and wrote the first program that went to market using it.

MW Which was?

Menéndez MacLightning. In January of 1986. Luckily for us, it coincided with the birth of the Mac Plus and SCSI, which coincided with the rebirth of the Mac. We showed MacLightning at the second Macworld Expo, in San Francisco. We were in the Apple booth. The product was a success; it was well received. We sold 100 copies at the show. All we had. We gave a copy to John Sculley, who came by the booth.

MW So MacLightning was written by the three of you?

Menéndez Right. Each of us wrote some aspects of the software. It was a team effort.

MW How did you decide to market the software?

Menéndez In November of 1985 we were looking for options to market it. A group in Miami had been trying to launch a software product, unsuccessfully, and we met them at Kendall Computers, where we all still worked. Their product was going under. They had a place, phone, contact with developers and distributors, but they didn't have a product.

MW So how did you decide to work with them?

Menéndez They needed a product; we needed a publisher. So we signed an agreement that would give them the rights to market our software. It really worked out well. They sold lots of copies—at the end of 1986, over 50,000 copies. That is a lot of software for a Mac product even today. Apple bought 19,000 to sell as a bundle to all Apple University Consortium schools.

MW What then?

Menéndez We worked at Kendall Computers up to May of 1986. Then we said, OK, we have to decide to go full-time to write a new version of MacLightning and do new products. The competition was stiff. By mid-1986 we had nine competitors. Still, MacLightning held on, actually led the market. In August of 1986 we had our own booth at the Boston Macworld Expo. Target Software, the company licensed to market Deneba's software, and Deneba shared the cost of a booth. We showed MacLightning 2.0 and Voilà, an outline processor.

By the end of 1986 we had MacLightning, Voilà, and started to advertise Memorandum. At the same time as we were releasing utilities and desk accessories, George was working on Canvas. In October of 1986 we leased our first office, near the Miami airport. It was a big office with just the three of us in it. Before, we had worked in our homes, shifting from one to another so that we could work at home but together.

MW And the big money started rolling in?

Menéndez At the end of 1986. We were very happy. The products were selling. We were coming out with new products, new versions, and we were independent. We had been very careful in signing with Tar-

get. We could decide what product to develop. Target had the first right of refusal on anything we did. If they decided not to publish it, then we could do anything we wanted. They took care of sales, marketing, and business and all else. The money was coming in. Hundreds of thousands in royalties for Deneba Software. We hired some office staff.

MW When did the problems start?

Menéndez At the beginning of 1987 things started to go sour. The guys from Target were making all their money from

continues



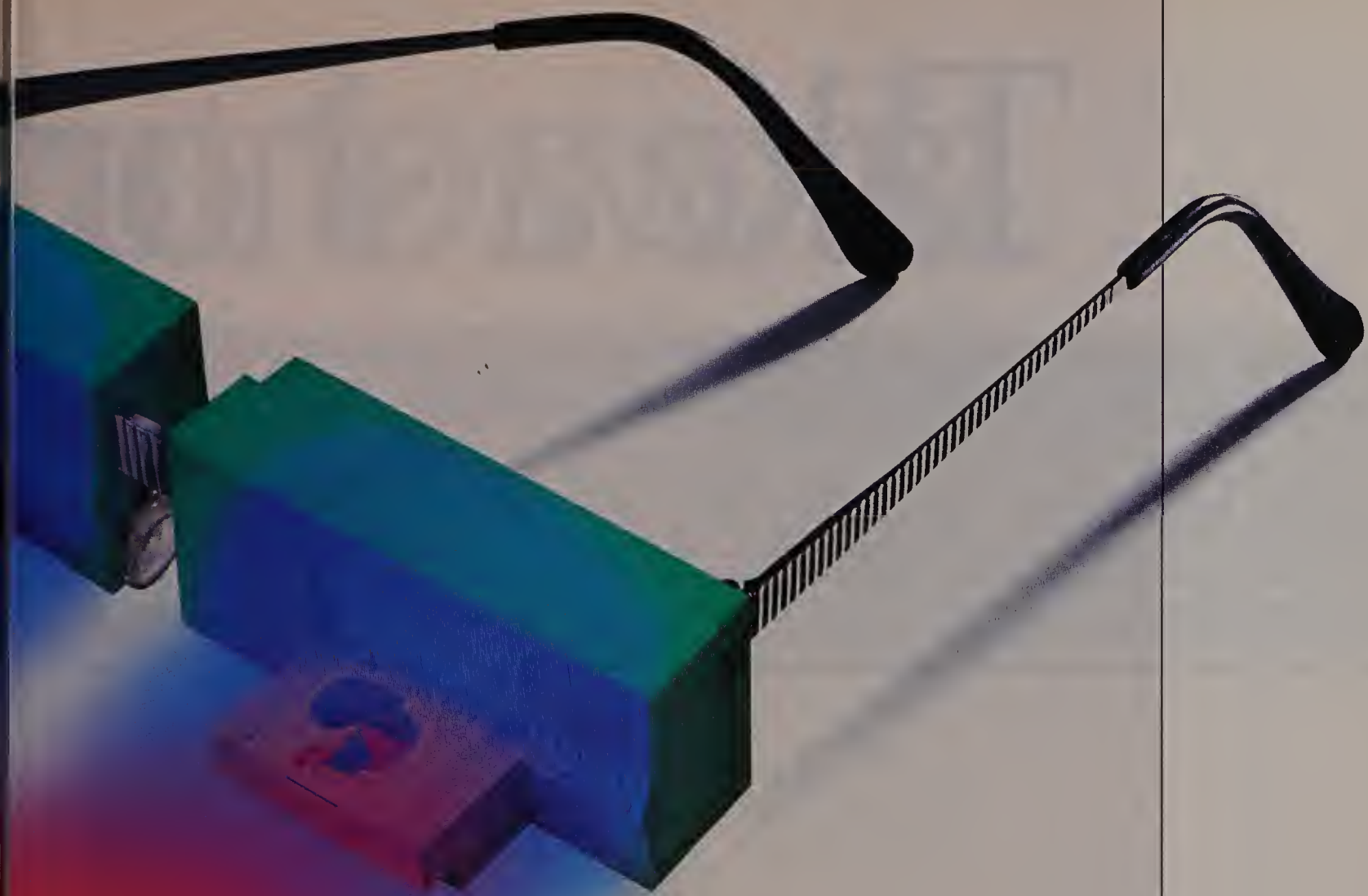
PHOTOGRAPHS BY JAMES KAMP

With HP's new PaintJet XL300, you'll

Introducing the 300 dpi color
printer that keeps your colors
clear with PostScript 2.



© 1992 Hewlett-Packard Company PE12206
*Suggested U.S. list price. Adobe and PostScript are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions.
†In Canada call 1-800-387-3867, Ext. 3157.



see what you've been missing.

HP brings laser-quality color printing into focus with the new PaintJet XL300 inkjet printer with PostScript 2. For the remarkably low price of just \$4,995.*

With 300 dpi color enhanced by state-of-the-art Adobe PostScript Level 2, the PaintJet XL300's output will astound you. Laser-quality text and graphics. Vibrant, Pantone-approved colors. All on a choice of media that includes plain or glossy paper or transparencies, in a wide range of sizes.

And with 6 Mbytes of memory, expandable to 18 Mbytes, the

PaintJet XL300 offers even the most demanding color graphics users plenty of room to play.

The choice of a color printer has never been so clear. Call **1-800-752-0900, Ext. 3157** for a free print sample from the PaintJet XL300 and the name of the authorized HP dealer nearest you.†



**HEWLETT
PACKARD**

Circle 185 on reader service card

Take a short

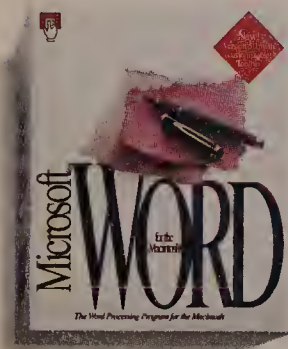


Shortcut to tools. Now it takes the least amount of work to use the functions you need most.

Shortcut to bullets. Your most important points are clearly featured in one speedy step.

Shortcut to envelopes. Address the outside from the inside. Automatically.

Introducing Microsoft® Word 5.1 for the Macintosh®.



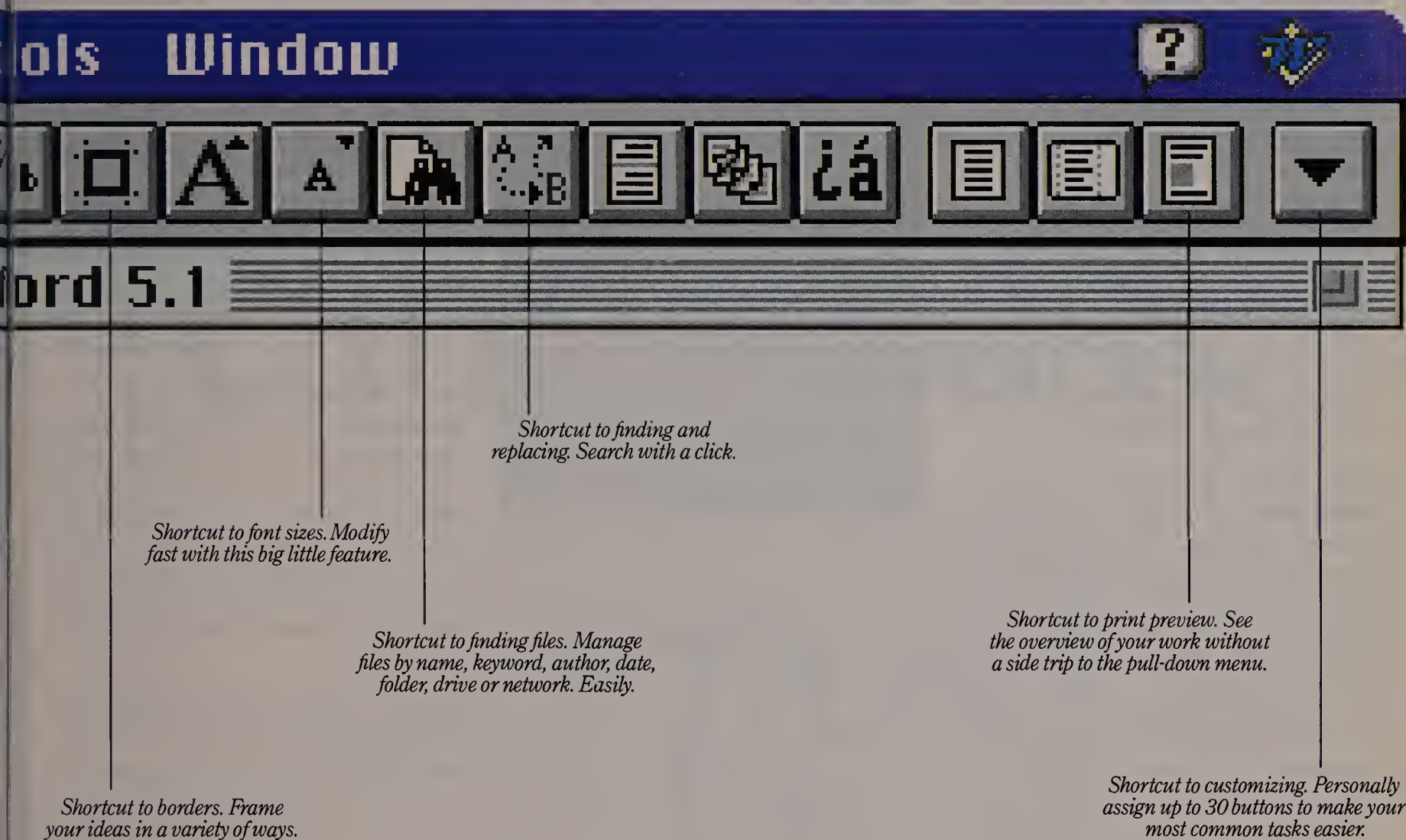
The path to easier computing just got shorter, with new Microsoft Word version 5.1.

Now you can speed through your work with our intuitive new Toolbar. It puts all of the functions you use most into short and easy reach. With a click.

This powerful Toolbar features one-step bulleting and automatic envelope addressing. Two great new ways to get into the fast lane. Or hit the typecase button to quickly select cases. You can even personalize up to 30 buttons to shorten the trip through repetitive tasks.

We've especially shaved time off your work on long, complex documents.

cut to work.



Now it's possible for you to easily create charts and tables or insert and edit your own text annotations. Your ideas look great in no time.

Microsoft Word 5.1 comes with special installation features and a new battery indicator for the Mac® PowerBook™. It also has QuickTime™ support, which allows you to add full-motion video as easily as inserting a simple graphic.

In short, we've made word process-

ing easier than ever before. Thanks to you. Because we got there by listening to your comments and suggestions.

If you'd like to know more about where we've taken Microsoft Word for the Macintosh, just call us at (800) 323-3577, Dept. HY3. And we'll show you the direct route to easier computing.

Microsoft®
Making it easier

the sales of our products. They had discovered a desktop publishing package and secured the rights to market it. They had big plans, these guys; Target liked everything big. We knew the developer of that product. He seemed like a good guy. That product, then called Scoop, eventually became Publish-It [published by Time-works]. Target started to spend big on trade shows and ads, and in the process they stopped paying our royalties, which was a fatal mistake.

We waited for months, had meetings, they said they had cash-flow problems. But we kept seeing ads for Scoop and our products. They were gambling, we felt, with our royalty monies. We had to lay off employees. We started to have financial problems, but we decided to keep the company, Deneba Software, alive even if we had to go hungry. We had incorporated in 1986 so Deneba could do business with Target in an official way, not just as George, Joaquin, and Manny.

MW You got hungry in that period?

Menéndez Well, we were starting to. Canvas, which we called DaDraw in-house, was under way. It was the only program that Target hadn't released. We saw that we had to sever the relationship. We had stayed in contact with reviewers, which proved good. We had all the rights to MacLightning's code, software, and all the technology in it. Target owned the trademark to the name and owned the manuals. So we couldn't just start making MacLightning. We needed revenues, but we had to rename existing products and write new manuals first. We lost all of the name recognition for the products. Our only immediate hope was Canvas.

MW What did you do about Target?

Menéndez In May of 1987 we filed suit against Target to obtain royalties. We were owed over \$200,000 for five months of 1987 sales alone. The product was selling well, but Target was fixed on competing with Aldus, in making tens of millions of dollars, not just millions. So we decided to release Canvas ourselves. To register the name, and release and market it with the money we had left. We decided to go for it—marketing, sales, advertising, packaging, design, shipping, tech support, accounting, sales support, the works.

MW When did you start?

Menéndez In August of 1987 we shipped Canvas 1.0. We put an ad in *Info-World*, the only established weekly that covered the Mac, and sold 50 copies in prerelease sales. [Silicon Beach Software founder] Charlie Jackson was one of the people who had to pay full retail.

Joaquin and I went to the August 1987 Boston Macworld Expo to meet with dealers and distributors. No dealers would carry the product. We couldn't afford a booth. Apple wouldn't let us in their booth. There was that attitude of, Who is Deneba? On top of that, Canvas was nice, more than nice, it was great, but Super-Paint had cornered the market. One guy who wrote a newsletter said that we shouldn't publish the product ourselves,



There is no doubt that the Mac is superior to Windows. But from a practical standpoint, Windows does the job and does it well for most people.

that we should find a publisher. It sounds ludicrous five years later.

At the time, we had the rights to a total of six products but only had the money to release one product—Canvas. We decided to do that and then to re-release the other products with the profits. Our agreement said that if Target didn't pay our royalties, they couldn't sell our software.

MW What happened with the DTP program, Scoop?

Menéndez There were delays. It was buggy. Eventually the developer got shafted, like us. Target raised \$500,000 in

venture capital in the summer of 1987. About that time you probably remember seeing an eight-page ad spread in *Macworld* and *MacUser*. The product was panned in reviews. Target had released it in a buggy state. They had had no cash coming in since May of 1987, when we terminated our publishing agreement.

MW Could you tell what was going on in the market?

Menéndez Reviews and market feedback told us that Target wasn't selling Scoop. In a way, that was bad for us. In the spring of 1988 we won our lawsuit and they immediately closed their doors. Just disappeared. I got a call from *Macworld* telling me Target wouldn't answer their phones and Joaquin, who lived nearby, went to Target and looked inside. It was empty. They had moved everything out.

MW How was Canvas received?

Menéndez By mid-September things were not going well, even though everyone who owned the product seemed happy. Then one West Coast regional distributor called and ordered 150 copies C.O.D. That saved the day, literally. That sale was over \$10,000. In effect, the three founders had gone off the payroll the previous March.

MW You did all of the work on Canvas with no staff?

Menéndez We had one programmer to help with the release. No one else. But we had placed ads. We had bills for the manual, bills from the artist who designed the packaging. It was time to pay those bills. The \$10,000 kept us busy. We used that as leverage to help us with other dealers. We sold 300 copies and broke even in October. At least we paid the bills. Still, we were not back on payroll.

MW What was the big break?

Menéndez In October a national distributor placed a big order on the product. The original distributor continued to buy it, too. We all three went back on the payroll. We had debts out the wazoo. Thank God for MasterCard and Visa. Someone kept sending my wife, Lourdes, \$5000-credit-limit preauthorized Visa cards based on some mailing list. We lived off those. I lost count of how many. Five or six of them—\$20,000 in credit card debt. Joaquin and George and I, we were all in the same boat. Very dark days, and a lesson I remember.

MW Yes, there is still a feeling of that in the company, of time clocks, tough negotiations, bare bones.

continues

And here's an upgrade you can't bypass.



New Microsoft® Word 5.1 for the Macintosh®. This new upgrade has such great shortcuts to work, that taking it home should be easier, too.

So for a limited time, as a special reward to all of our registered users of version 5.0, you can upgrade to 5.1 for only \$14.95*. And for users of any earlier versions of Microsoft Word, you

can upgrade right now for \$129*.

For more information about this terrific offer, you can give us a call at (800) 323-3577, Department HY3. And discover for yourself why new Microsoft Word 5.1 won't be easy to pass up.

Microsoft®
Making it easier

*Plus a \$5 freight fee and applicable sales tax. Reseller price may vary. Offer good only in the 50 United States. Nonregistered users of Word for the Macintosh wishing to upgrade must demonstrate proof of purchase. Inside the 50 United States, call (800) 323-3577, Dept. HY3. For information only. In Canada call (800) 563-9048. © 1992 Microsoft Corporation. All rights reserved. Printed in the USA. Microsoft is a registered trademark of Microsoft Corporation. Macintosh is a registered trademark of Apple Computer, Inc.

Menéndez I always like to talk people down to the best price. I need to get the best deal on everything.

MW Where is Deneba in terms of sales and size?

Menéndez Last year we made \$8.4 million in sales and are projected for \$11 million in 1992. We have 62 employees.

MW How would you evaluate the company's net worth?

Menéndez Well, if you take companies similar to ours, they've sold at a price equal to 2½ to 3 times annual sales. Fox Software, Silicon Beach, Peter Norton. So we would be valued at \$24 to \$30 million.

MW How has UltraPaint done?

Menéndez Very well. We'll have the 2.0 release done for the October-November time frame. It has 32-bit color and new tools. We have to keep up with the Joneses.

MW Has Adobe Photoshop had an impact on the market for paint software?

Menéndez I see Photoshop as a product in the imaging market. Adobe pretty much owns that market. Paint, as a category of software, was on the way down before Photoshop came out. Business users began to outpace personal users of paint programs several years ago, and business users view object-oriented graphics programs as better tools for business. Of course, traditional graphic artists continue to use paint software. [Deneba's] UltraPaint is also an object-oriented graphics program.

MW Has UltraPaint done as well as you hoped?

Menéndez Not as well as we hoped, but better than competitors like PixelPaint, VideoPaint, Graphist Paint, and Cricket Paint. UltraPaint did better than Studio/8. Overall, UltraPaint is a success. We have made a lot of money from the product.

MW Is Canvas a bona fide Macintosh hit?

Menéndez Last year we reached the 200,000-unit mark in sales and it's still selling well. That places it right up there with a select few in the Mac market; with PageMaker, MacWrite, FileMaker.

MW What about Windows?

Menéndez I don't know the delivery date, but we've been working for the last few years on Windows. Our goal is to move our entire product line to Windows and make all of our products multiplatform-oriented.

MW Compare the Windows and Macintosh environments.

Menéndez There is no doubt that the Mac as a seamless operating system—graphics user interface is superior to Windows. From a practical standpoint, however, especially price-to-performance ratio, Windows does the job and does it well for most people. But it takes longer to get Windows installed than it does to start up on a Mac. On the other hand, in



corporate America there are departments that configure and install software.

MW What does that mean for Apple?

Menéndez Apple had to do what it seems to be doing now, being aggressive with Mac prices. For example, here on my desk is an 80486 machine with 16MB of RAM, a 256K RAM cache, a mouse, a VGA card and monitor, keyboard, and Ethernet. It's a PC clone for which I paid \$2000 retail. It compares to the Quadra 700, and in some cases is superior, but the 700 in a similar configuration would cost \$6000 to \$8000. That's a large part of why Windows is so successful. In the figures that I read, worldwide they expect 10 to 15 million Windows machines by year's end, compared to 8 to 9 million Macintoshes by year's end.

MW How important are foreign markets for Deneba?

Menéndez Foreign sales are 20 to 22 percent and growing. Canvas is in five languages in addition to English.

MW How do you rank your foreign markets?

Menéndez Japan and France are about equal. After that the United Kingdom, Germany, and Sweden. A Spanish version is just coming out.

MW What do you think about the process of product reviews in computer magazines?

Menéndez Reviews are important in

our industry, just as in any other industry. I go to reviews to buy cars, cameras, and software too. It's a painful but necessary process.

MW Why painful?

Menéndez No one who has worked for years on something likes others to find flaws in it. And there is a lot riding on reviews. There are 60-some families depending upon good reviews, not just the three owners of Deneba. But it doesn't stop there. The market has to approve of a product, too. People vote with their dollars.

MW Were there any problems with Canvas 3.0?

Menéndez Primarily with some PC import file filters—DXF, IGES. They're not really standards; that's an oxymoron for file formats. We tried to test with as many file formats as we could. But as the product was more and more widely used, flaws came out in use with obscure products or in their files. But we moved quickly to correct these problems. This will continue forever—the trouble is that there is really no file format exchange standard.

MW How is it being an Apple developer these days?

Menéndez We have a fairly good working relationship with Apple and are working with them on new technology and developments. We're realistic toward Apple. If you have something that will help them, they'll help you. If not, they won't.

MW Is that a change?

Menéndez No, that's how we've always thought of Apple. They've never really gone out of their way to help, so we've never depended upon them. As it should be. We've never been dependent upon them as many other companies have been.

MW For example?

Menéndez Claris [*Menéndez laughs*].

MW How about Apple Evangelism?

Menéndez Lots of changes there. Funny, until recently we rarely received any attention. Then Apple started to get involved with us again. It was pragmatic, to get people to support System 7.0. We've worked closely with them on the 7.0 rollout and on QuickDraw G/X.

MW What about 7.0 system software?

Menéndez It was adopted quickly. We used publish and subscribe, Apple events. All were supported by us before 7.0 shipped. Other developers didn't adopt

continues

Who says you can't
have a good time
while you're
organizing it





Does having a blast with your personal computer violate your work ethic?

When faced with bizarre, disturbing, yes, even sick humor, do you become confused and disoriented?

When asked if you know Joe DiMaggio's number, do you look in the phone book?

Do you think cellulite is something they use to make movies?

Perhaps you should skip to the back page.

THREE WAYS TO ENJOY DOING TIME.

THE PERFECT GIFT FOR YOUR LOVED ONES, CO-WORKERS AND RECENTLY MET CASUAL ACQUAINTANCES.



As you'll see on the back, the Amaze Daily Planners are fully functional, multi-featured, perpetual personal organizing systems.

As you'll see here, they're also a kick in the pants.

If you love The Far Side, you'll drool at the chance to gaze into your screen and savor a daily dose of dementia straight from the mind of Gary Larson.

And you'll be delighted to know that the daily cartoons aren't the only things to laugh about.

Our new daily planners are 365 times more fun than anybody else's



Because The Far Side Daily Planner actually brings The Far Side to life. With a menagerie of animated creatures and characters that appear on screen just when you least expect them.

The Cathy™ Daily Planner brings Cathy Guisewite's insightful characters to life in the same animated, unpredictable way.

Animated characters will brighten your day by popping up on your screen, just when you least expect them.



Cathy and her friends simply drop in whenever they're in the mood to complain, bemoan, sympathize, or just say hello.

And that's in addition to the hilarious cartoon traumas you'll be treated to each day.

Of course, you don't *have* to be laughing to be enjoying yourself.

You could, perhaps, be thinking.

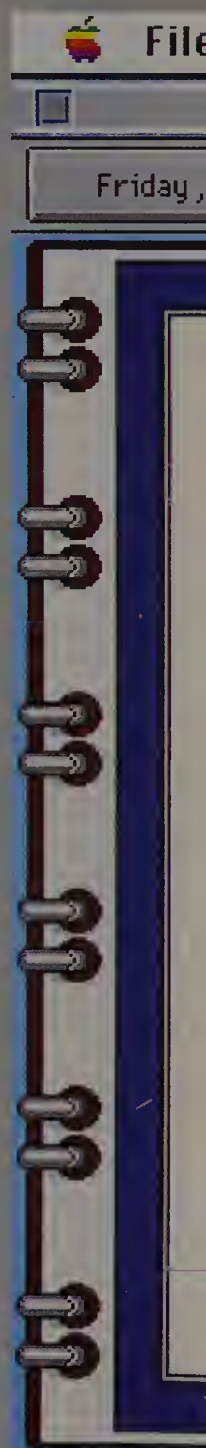
The Trivial Pursuit® Daily Planner gives you a pair of ways to bend your brain: the Sports Edition *and* questions from the original Trivial Pursuit.®*

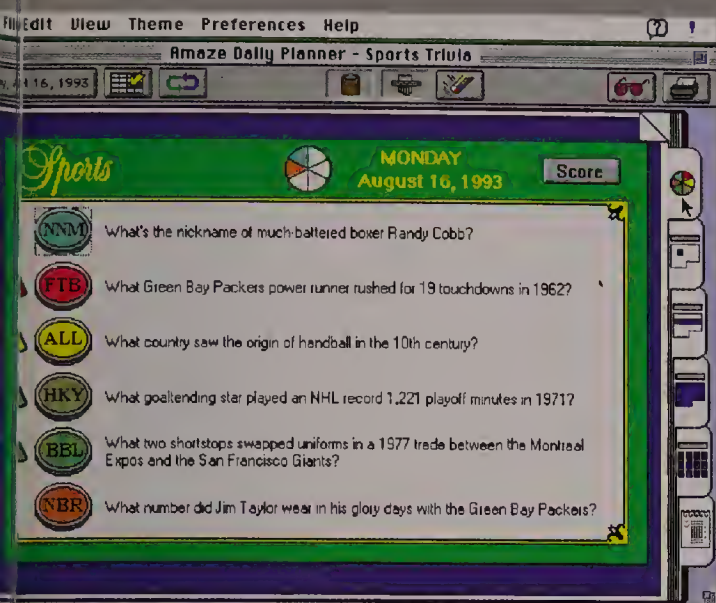
All in one box.

Each edition serves up six daily challenges (that's 4,380 in all, but who's counting), gives you extra chances to guess correctly, and keeps score right through the year.

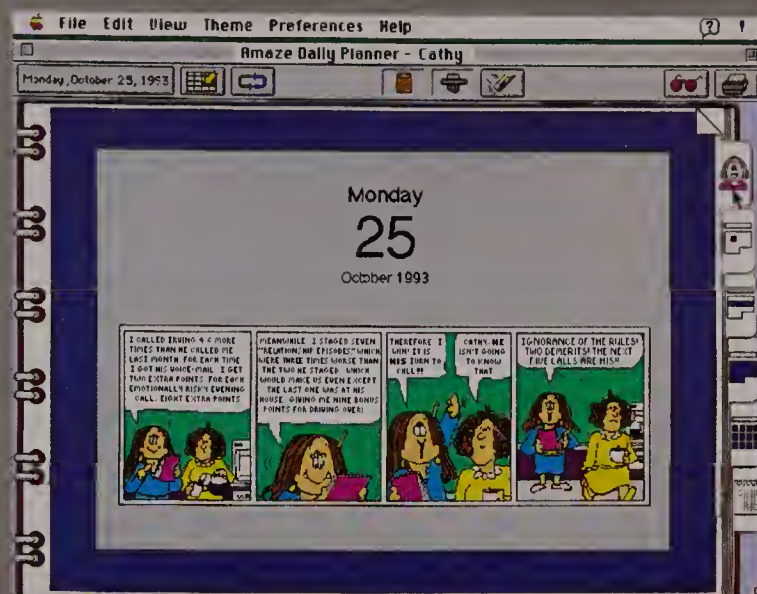
So you always know exactly how smart you are. Or not.

*Genus™ Editions.

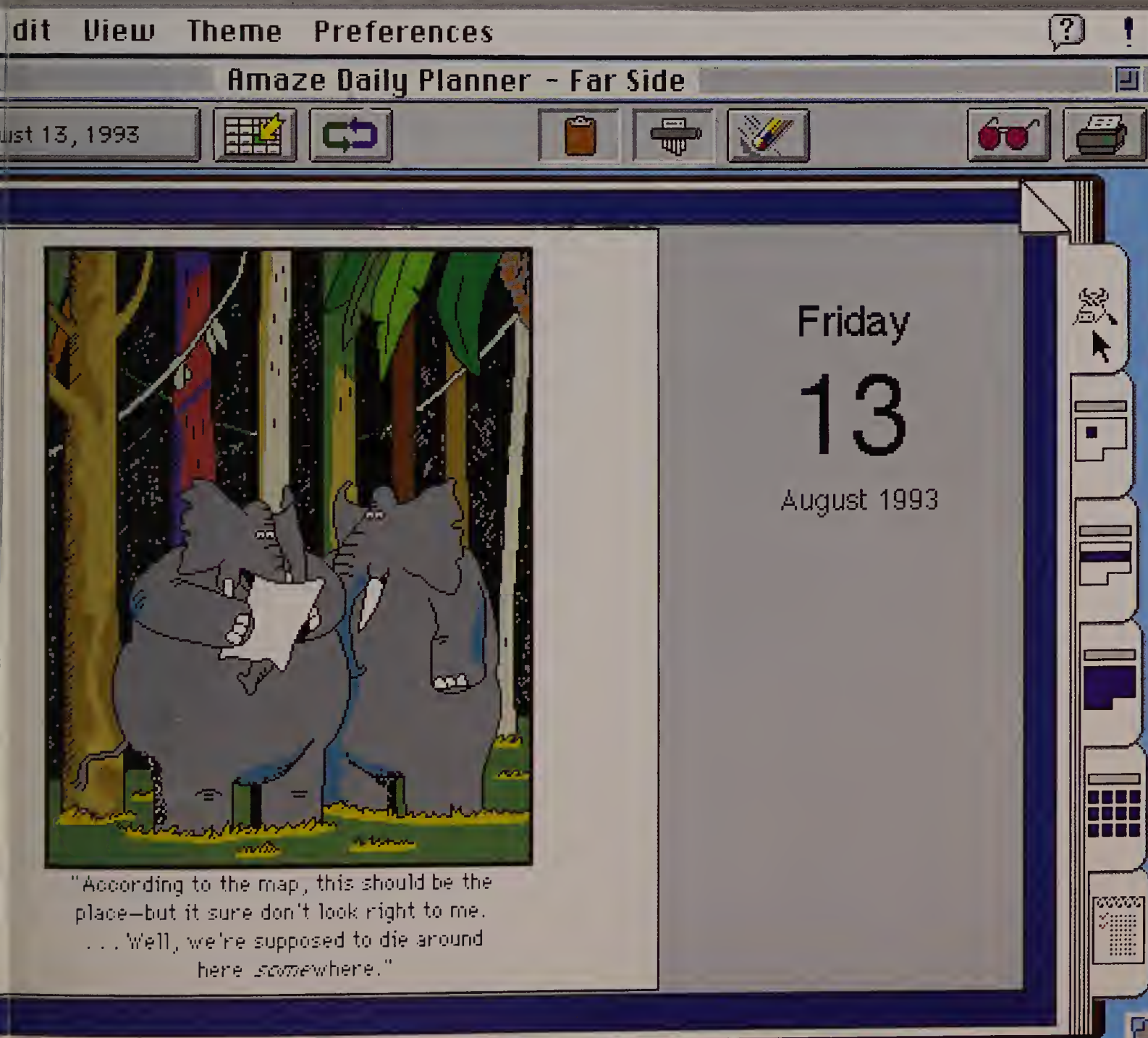




TRIVIAL PURSUIT® Includes Sports and Genus™ Editions! Start each day with 12 fresh challenges. Don't worry, we'll keep score.



CATHY™ Now your computer actually understands you. Enjoy 365 ironic, poignant, hilarious daily traumas—52 in color!



THE FAR SIDE Now it's as near as your personal computer. Gaze into your screen and savor a daily dose of dementia straight from the mind of Gary Larson. Volume 11 is just as funny as Volume 1, if that's possible. And once a week, it's in color!

Come on, admit it.

You figure anything that's this much fun can't be much good for serious planning, right?



even notes to yourself— from a single screen. You can plug in recurring events on a daily, weekly,

unique collection of animated icons.

SO, WHAT HAVE WE DONE FOR YOU LATELY?

If you're already an Amaze user, you'll want to get your hands on Version 2.0 without delay.

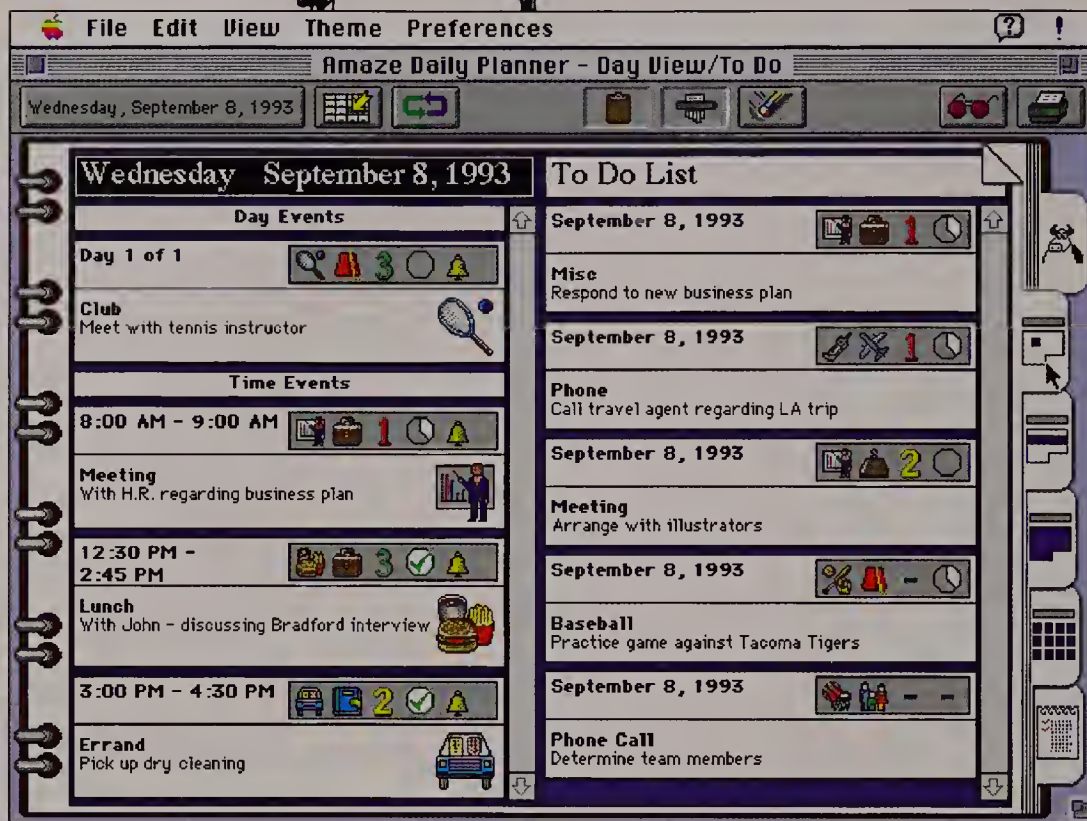
Because you'll enjoy a stack of convenient new features.

Like a handy tool bar that gives you instant access to the clipboard, shredder, printer, viewfilter and undo feature.

And easy-access tabs that will remind you of your favorite notebook planner.

You'll wonder what you did without our To-Do List that lets you organize, prioritize, customize and assign a status to as many tasks as you like.

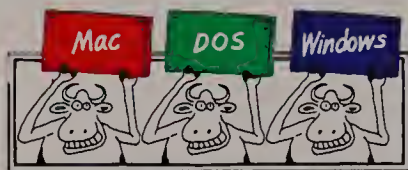
Speaking of tasks you'll like, how about calling 800-395-1546



Wrong.

Each Amaze Daily Planner does all the stuff you'd expect other boring, businesslike, but-toned-down, unfun planners to do.

You can organize, view and print out your schedule by the



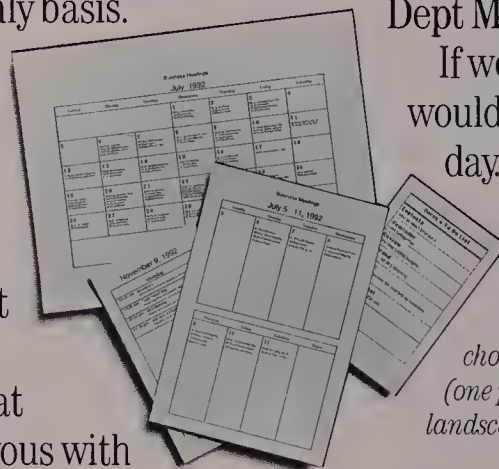
day, the week, the month or the whole year. You can edit everything—dates, times, meetings,

bi-weekly or monthly basis.

It's as easy as click and drag.

You can set audio alarms to keep from forgetting that important meeting with the Big Cheese. (Or that important rendezvous with the Main Squeeze.)

And while you're at it, you can get a graphical overview of your day, courtesy of our



Dept MW3.

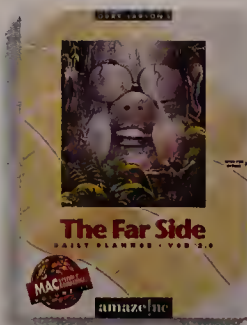
If we were you, we wouldn't wait another day.

Plan your schedule by the day, week, month or year and print any planner view in your choice of sizes and formats (one page or two, portrait or landscape) to fit your favorite day-planner book.



Available at Babbages, BizMart, Computer City, CompUSA, CompuAdd, Egghead Software, Electronic Boutique, Software Etc., Tandy/Radio Shack, Walden Software and other places, too.

amaze!nc™



7.0 features as quickly. Users adopted 7.0 much faster than the developers.

MW Yet research shows only 300,000 to 350,000 using 7.0.

Menéndez More than that. A lot more.

MW Compare that to the adoption of Windows by DOS users.

Menéndez I wouldn't compare those two. Windows filled a sore need for millions using DOS. System 7.0, relative to Windows, is marginally important compared to the need DOS users have for a graphical user interface.

MW What is QuickDraw G/X? What does it do?

Menéndez QuickDraw G/X is Apple's improved color-imaging system. It's an alternative to QuickDraw. It's very important, I think, and long overdue. I have high hopes for G/X, but I'm not sure that it will do the job completely. I always wanted to see more precision built into the QuickDraw graphics model, primarily from a collaborative point of view. Say you make a drawing in a precision draw program and want to drop it into a word processor. You want to retain the precision of the original drawing in the word processor document. There is still a question, with G/X, whether the Clipboard will resolve this problem. The cut-and-paste functions on a Mac could be as powerful as those on a Next machine.

MW Cut and paste on the Mac is not that powerful now?

Menéndez Absolutely not, from a user's perspective. I hear from users that things move around. Canvas and some other draw programs allow objects to be placed with greater precision than QuickDraw's limit of 1/2 of an inch. If you save a Canvas or other draw program file as an EPS file and import it, printing is OK. But if you cut and paste via the QuickDraw Clipboard, then it's real difficult to guarantee placement or accuracy if the file is printed from another application.

MW The entire concept of modular software, software components, was popular for a while. Now no one seems to talk about it much. What happened?

Menéndez First, that is not one but many ideas. No one talks about the ideas now because reality has set in. The most we can do now is what we have in Canvas or UltraPaint. They are modular programs in the sense of being extensible.

MW What does that mean?

Menéndez Writing software from scratch in an object-oriented fashion. The

Apple II had hooks for developers to use so that people could turn the Apple II into an oscilloscope if they wanted to. Similarly, people can use *Inside Canvas*, a document that teaches programmers how to use the Canvas graphics engine. It allows users to modify the program for their own uses. In the release of Canvas 3.0 in August 1991 there was no QuickTime component, for example. Canvas's open architecture allowed us to release a QuickTime



tool when QuickTime itself shipped. This tool allowed users to run QuickTime in Canvas immediately, last December.

The main benefit is that you can buy a product now and don't have to wait years to take advantage of the latest tools or techniques. We can add a feature at a component level without waiting for a major upgrade, which is trouble for both end users and companies with products.

MW Silicon Beach was your old competitor. They seem relatively quiet these days.

Menéndez In the early days Canvas competed with SuperPaint. Now SuperPaint competes with UltraPaint. Silicon Beach sacrificed development on that product to get out SuperCard and Super 3D. Maybe that helped the owners to sell the company to Aldus, but it didn't help the products in the long term.

MW Whom do you admire the most in the computer industry?

Menéndez Bill Gates. The guy has got what it takes. He's obviously smart, he has grabbed opportunities aggressively, and he has been relentless in his pursuit of success.

MW What about products like Microsoft File and Chart?

Menéndez You can't win 'em all. The key to winning the war is not in winning every battle. Still, Microsoft may not have given up on those products just yet. Or maybe it's better to move on.

MW Do you have any products that you need to move on from?

Menéndez That's a painful question. The market for some early products, like Comment, isn't there anymore, but we're really attached to Comment. We all use it here. But it is exceedingly expensive and complicated to keep system-level utilities in the market. They screw up Apple's system software strategy. You do things that are not intended to be done, pretty wicked things [in the system software] to offer facilities to the users. Intercepting system traps, massive numbers of them. Taking the place of system resources. Trying to trick the system into thinking that something is going on when it's not. Complicated stuff. That's fine until Apple introduces new system software, in which case your methods and strategy may not work. The Apple rule of the last five years is don't do it.

MW Do you want to remain a small businessman?

Menéndez No. I want to be a very big businessman. So do Joaquin and George. But we're willing to wait. We want to sleep at night. Look at our situation. We just bought a new building for two-thirds of what it's worth, but we should have moved out of our two old buildings one and a half years ago. There are some inefficiencies in having two separate facilities for the company, with 30 people in each of two buildings rather than 60 in one building. That has psychological effects on people. You can hire better people if you are seen as a more successful company. This desk [*Menéndez stoops to drag open a stuck desk drawer*], it's hard to open, but I want to spend dollars on computers and good people, not furniture or real estate.


MW Charlie Jackson sold Silicon Beach to Aldus when his company hit \$11 million in sales.

Menéndez That's correct, for about \$24 million worth of Aldus stock.

MW Wouldn't you like to have that kind of money from selling Deneba?

Menéndez Yes, it's attractive. But what would you do with \$20 million, put it in the bank? I'm 34. George and Joaquin are 28. What would we do? Start a new company? Why not just grow this one further?

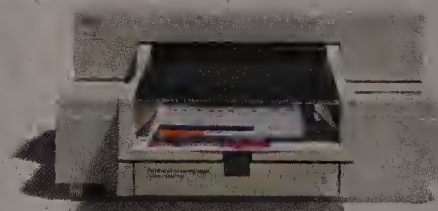
MW Because of the examples of all of the small software start-ups that don't make it.

Menéndez It's all a state of the mind. The journey is the reward. I have fun. Joaquin and George do too. We enjoy coming to work. It still feels the same. 

Make it clear.

Make it colorful.

Make it happen.



The HP DeskWriter 550C
for the Mac.
\$1,099.

Great things happen when you have a DeskWriter 550C printer from Hewlett-Packard. Because it's never been so easy to print high-quality black and white. And brilliant color.

The DeskWriter 550C prints true black at 300 dots per inch. Clean, crisp and sharp, for the kind of professional print quality you expect from HP.

For added impact, the DeskWriter 550C makes it easy to add color to your work. The black and color cartridges are built in and work together. Giving you access to millions of colors.

You can get an HP DeskWriter 550C, or the DeskJet 550C for PCs, for a suggested list price of only \$1,099*. So if you're looking for an affordable way to make a powerful impression, get a DeskWriter 550C printer. Then see what happens.

For another cost-effective way to get great-looking black and white and color, the HP DeskWriter C and the DeskJet 500C are now available for a low price of just \$779*.

Call 1-800-552-8500, Ext. 7119 for the name of the authorized HP dealer nearest you†. To receive information by fax call 1-800-333-1917, choose HP FIRST, document #9607.

DeskJet Printers
Make it happen.

marketing **MADE EASY**

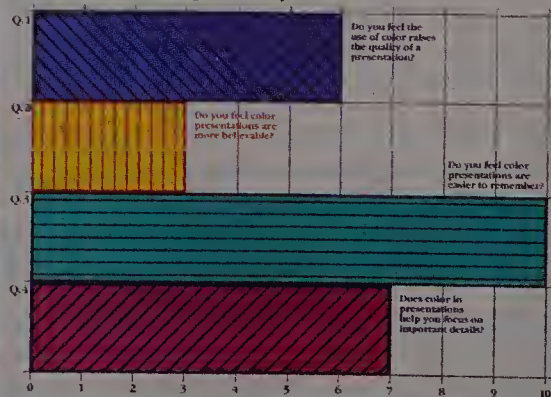
Effective marketing has one very simple objective. To focus positive attention on your product or service. One of the more popular ways to accomplish this is through presentations. Many people have found that the use of color in presentations is an excellent way to maximize their impact.

Printed below are the results of an informal survey to determine the effectiveness of color in marketing presentations.

They are intended only to provide examples of kinds of color output that can be generated. And to offer inspiration for those looking to add strength to their marketing efforts.

Participants were asked to respond to the questions on a scale of one through ten, with one representing "no, strongly disagree" and ten representing "yes, strongly agree". The results were then tabulated and an average was generated, represented in the horizontal graph columns below.

Results of color impact survey:



**HEWLETT
PACKARD**

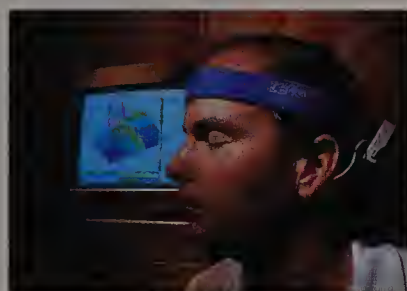
MAC WORLD

NEWS

THIS MONTH:

Adobe's PixelBurst •
32-ppm Printer •
DayMaker Upgraded •
InfoTAC Radio
Modem • Network
Virus Control

BY DAN LITTMAN AND TOM MORAN



EDUARDO CITRINBLUM

DAVE WARNER, A NEUROSCIENTIST AT LOMA LINDA UNIVERSITY, RUNNING HIS BRAINWAVES THROUGH THE ANALYZER.

Brain Drain

IF YOU'VE EVER wanted to get inside someone's head, the Interactive Brainwave Visual Analyzer (IBVA) could be the tool you need.

IBVA users wear a strap around their head containing sensors that pick up electrical activity in the brain and relay it, through a series of devices, to software on the Mac. The Mac then displays the signal in real-time 2-D or 3-D graphs. IBVA can be used for biofeedback, and developer Psychic Lab is promoting it as a new art form; other companies are developing brain wave-driven games and adventure software for it.

IBVA includes software and costs \$995 with hardware for one side of the brain or \$1595 with hardware for both sides—or for two people's brains (one side each). Psychic Lab, 212/353-1669.—D.L.

RasterOps Builds Video Wall

For that really big show, RasterOps has come out with The Wall, a system for creating large displays from several 28-inch monitors—as many as 16, stacked 4 high and 4 across. The heart of The Wall is the WallBoard, a NuBus board that can support up to 4 large color monitors. Each WallBoard can accept video input from up to 4 video sources, and the system's included presentation-control software assists with placing those images in windows and



RASTEROPS' WALL CAN HAVE UP TO 16 MONITORS STACKED 4 HIGH AND CONTROLLED BY A MAC.

modifying them with special effects. RasterOps also provides presentation templates with The Wall.

Multiple WallBoards work together in the same Mac to support more than 4 monitors.

HP DeskWriter 550C

HEWLETT-PACKARD HAS INTRODUCED the DeskWriter 550C, a color ink-jet printer that contains two ink cartridges to improve print quality and avoid the cartridge-swapping necessary with the single-cartridge DeskWriter C. One of the DeskWriter 550C's cartridges contains only black ink, while the other cartridge holds cyan, magenta, and yellow inks. When printing a color image, the DeskWriter 550C produces sharper blacks than those made by combining the cyan, magenta, and yellow inks to create process black. The printer finishes a full-color page in about 4 to 7 minutes, according to HP.

The QuickDraw printer also has 35 scalable fonts (versus 13 for the DeskWriter C), and it adds an adjustable paper tray and envelope-feeding capability. HP expected to ship the DeskWriter 550C beginning November 1 at a list price of \$1099. The company recently dropped the list price of the DeskWriter C from \$1095 to \$779. HP, 800/752-0900.—T.M.



SCOTT PETERSON

THE HP DESKWRITER 550C CAN PRINT BLACK-ONLY DOCUMENTS OR FOUR-COLOR IMAGES.

A WallBoard displays graphics at 16 bits per pixel and 1162 by 864 per board (not per monitor). The Wall system was scheduled to be available in October. The list price varies widely according to the number of monitors supported, but was expected to begin at \$4995 for a minimum system not including the monitors. It's meant for conventions, but, hey, what a great game peripheral. RasterOps, 408/562-4200.—T.M.

Pastel's New Colors

PASTEL Development Corporation is upgrading its personal information manager DayMaker with several major changes. Version 2.0's new To-Do view replaces the List view with a split window that separates completed and uncompleted events; reminders can be set to forward themselves if not completed. DayMaker 2.0 provides a very

continues

SONY ENHANCED DATA GRADE D8. DESIGNED TO SAVE YOUR BUSINESS. NOT YOUR BIRTHDAYS.



The more information your business generates, the more you stand to lose. Because not all the 8mm tapes used by business are designed for business.

So before risking valuable data to a tape made for saving video memories, rely on new Sony Enhanced Data Grade D8.

This compact D8 cartridge starts out where our video grade leaves off, holding up to 5 gigabytes, for today's high-capacity storage and archiving. With data security features you'd only expect from the inventor of the 8mm video format.

For instance, new D8 has a more durable media for greater data integrity, taking over 1,500 full back-ups, to keep your business moving forward.

The shell is made to resist warping, while an improved lid reduces friction through over 10,000 openings and closings. The result is a shelf life that will exceed 30 years under recommended conditions. So your data will be around when you need it.

Since lost data can cost your business its lifeblood, trust yours to the safest place of all.

Sony Enhanced Data Grade D8. A memory worth celebrating.

SONY

SONY RECORDING MEDIA

©1992 Sony Corp. of America. Sony and Only On Sony Recording Media are registered trademarks.

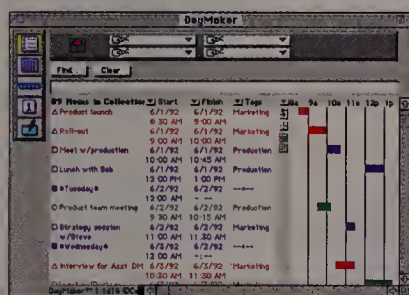


Circle 282 on reader service card

**ONLY
ON
SONY**
RECORDING MEDIA

flexible recurring-event feature that supports moving, changing, or deleting one instance or all instances of an event.

Pastel has licensed printing technology from Portfolio Systems to improve printing capabilities. DayMaker 2.0 was built by Pastel with an open architecture, which the company is using to develop multiuser group-scheduling capability and a structured-field address book for this fall; Pastel expects third-party add-ons to follow. DayMaker 2.0 is \$129. Pastel, 212/941-7500.—D.L.



MOST OF THE CHANGES IN DAYMAKER 2.0 ARE NOT VISIBLE—SUCH AS ITS SUPPORT FOR ADD-ON MODULES.

QMS 32-ppm Printer

For those who are tired of waiting at the printer as pages slowly crawl out, QMS has designed the QMS-PS 3200 Print System, a high-speed network laser printer. The QMS-PS 3200 produces up to 32 pages a minute at 300 by 300 dpi. It can accept files in PostScript or PCL (from DOS machines). The printer has LocalTalk, serial, and parallel interfaces included, all of which can accept data at the same time. The user can opt for a fourth interface, either Ethernet or Token Ring.

The QMS-PS 3200 can print on letter- or legal-size paper on one side or both sides. It can contain an optional 40MB or 120MB hard drive and has a SCSI controller for supporting up to six external drives. Other standard features include 45 Adobe Type 1 typefaces, 16MB of RAM, and a high-speed RISC processor that runs QMS Crown, software for controlling print jobs.

The QMS-PS 3200 Print System lists for \$19,995. It is currently shipping. QMS, 205/633-4300.—T.M.



BRIAN SIMALE

AT COMSTOCK, MILTON RODRIGUEZ USES DEBABELIZER TO AUTOMATE PUBLISHING DIGITAL PHOTO CATALOGS.

Artists' Rosetta Stone

Equilibrium is shipping DeBabelizer, a graphics-manipulation package that automates preparation of digital images for many uses.

DeBabelizer provides more than 40 graphics formats, for users to open and convert files. It can compare the color palettes from several images and pick the best palette for the group, replacing the least-needed colors with colors from the combined palette. DeBabelizer performs such transformations as converting a Mac image's aspect ratio to one for DOS; and the program can run through a folder of images and paste a credit, copyright symbol, or other text at a specified location on each one. DeBabelizer can record a user's actions as a macro and has a scripting mode. It lists for \$299. Equilibrium, 415/332-4343.—D.L.



THE 32-PPM QMS-PS 3200 PRINT SYSTEM CAN ACCEPT DATA FROM THREE SOURCES AT ONCE.

ACIUS's New Dimension

ACIUS IS DEVELOPING a new version of its database-development environment that, the company says, provides its own preemptive multitasking support, a key database requirement lacking in the Macintosh Operating System. 4th Dimension 3.0 is also modeless and can open windows for coding and running a database simultaneously. Multiuser 4D is obsolete; in its place, version 3.0 will work with the new 4D Server.

ACIUS is developing an interface to allow other applications, such as Excel, to communicate directly with 4D Server databases; ACIUS will also do an interface for Windows. 4D 3.0 will list for \$895; 4D Server pricing will depend on the number of users. ACIUS, 408/252-4444.—D.L.

Fiber Optics for the Desktop

The Retriever Plus from Augment Systems is a fiber-optic network intended for fast file transfers for desktop color prepress. Files are transmitted at more than 1MB per second when using fast Macs such as the IIfx or a Quadra.

The basic Retriever Plus comes with two fiber-optic NuBus boards and a 25-foot fiber-optic cable for linking two systems. Its list price is \$4800 and it is currently shipping. Augment is also shipping a piggyback version that plugs into RasterOps' ProColor 32, a 32-bit color graphics adapter that saves a NuBus slot. Augment Systems, 617/271-0230.—T.M.

For Local Area Viruses

MICROCOM IS UPDATING VIREX to make it network-smart. Version 4.0 comes in two flavors, one for users working alone or on a network, and one for network administrators. The administration module allows a network administrator to configure users' machines without going desk to desk; manage passwords and setup; request users to run a virus scan or force a scan to happen; and receive reports of possible virus activity anywhere on an internet.

Virex lists for \$99.95 per user. The administration module will be included in ten-packs or available free on request. Microcom's Utility Products Group is at 919/490-1277.—D.L.

News



PETER HOEY

TREND

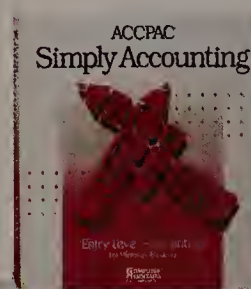
Adobe PixelBurst Processor

The PixelBurst processor, a chip designed by Adobe, can accelerate the rasterizing of images in PostScript by about 10 times. The chip, an ASIC (application-specific integrated circuit), takes the display list (the list of objects that describe the page) generated by PostScript and turns it into a finished bitmap. The bitmap is a representation of which potential dots on the page will be marked (by the printer's toner) and which will remain white.

Previously the rasterization was done by software, but a chip specifically designed for a task like this can always do it much faster than a program. The PixelBurst processor chip will be sold by Adobe to printer manufacturers, who will include the device in their printer controllers, probably before the end of 1992.—T.M.

Some People Are Born Accountants. For The Rest Of Us, There's New ACCPAC Simply Accounting.

Easy To Learn, Easy To Use And Only \$199.



Now there's an accounting program anybody can use—new ACCPAC® Simply Accounting™, the quickest and easi-

est way to take care of your books.

You'll have it up and running in minutes. And you can do anything with just a few clicks of the mouse. Write a check. Print out an invoice. Do your payroll. Manage your receivables.

What used to take hours now takes just minutes. So you can spend less time counting your money—and more time making it.

And since it costs only \$199, you can take care of your books without breaking the bank.

Call us today at 1-800-CALLCAI for the location of your nearest dealer.

It's the accounting program anybody can use.

And we mean anybody.



For Only \$199 You'll Get: • General Ledger • Accounts Payable • Accounts Receivable • Payroll • Inventory Control • Job Costing • Prints Checks, Statements, Invoices and Mailing Labels • Produces Standard Accounting Reports • Quick Set-Up

© Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788-7000. All product names referenced herein are the trademarks of their respective companies.

Circle 82 on reader service card

DayStar's

68040 TurboStar

The TurboStar from DayStar Digital is a 33MHz, 68040-based accelerator board that speeds up the Mac II, the IIfx, the IIfx, or the IIfx. TurboStar fits in the Macintosh's Processor Direct Slot, which makes it faster than accelerators that connect to the system board through the relative bottleneck of the NuBus.

The list price of the TurboStar will be \$1999 when it ships in late 1992. DayStar will offer inexpensive upgrades to the TurboStar from its existing 50MHz 68030 PowerCache accelerators. The company is also working on a TurboStar for the Mac IIfx. DayStar, 404/967-2077.—T.M.



ROBERT PERRY

THE DGR 256REM FROM DGR TECHNOLOGIES STORES UP TO 256MB ON ITS 3½-INCH OPTICAL MEDIA.

Higher-Capacity Optical Drive

DGR TECHNOLOGIES has introduced the DGR 256REM, a 3½-inch erasable optical drive that stores 256MB, twice the capacity of most existing 3½-inch opticals. Based on a mechanism made by Mass Optical Storage Technologies (MOST), the drive can read from and write to standard 128MB cartridges.

The optical device has an average access time of about 48ms and a maximum data-transfer rate of 1228K per second, according to DGR. The 256REM lists for \$1699 and is now shipping.

DGR also began shipping the DGR 128Turbo, a 128MB,

Scitor Updates Project Manager

KEEPING UP WITH ANNOUNCEMENTS for Microsoft Project 3.0 (*Macworld News*, September 1992) and Claris's MacProject Pro (*News*, October 1992), Scitor Corporation is upgrading its Project Scheduler from PS4 to PS5.

PS5 can link dependencies across projects, so that organizations can coordinate an unlimited number of projects that depend on each other's tasks and share the same resources. PS5 has a new Hammock task constraint, with duration based on latest predecessor and earliest successor. PS5's report generator is more flexible than PS4's and supports batch reporting. Resources and tasks can be assigned priorities when performing automatic resource-leveling.

Major changes in the Gantt chart view include support for annotating the chart and the ability to align resource histograms and cost graphs with the chart's time scale. Resources and tasks can be edited or sorted in a table view, and they can be displayed in a hierarchical tree chart view. PS5's price remains \$695. Scitor, 415/570-7700.—D.L.



ACEY HARPER

DANIELLE PORTER AND RON CARUANA USE PS5 TO COORDINATE PRODUCT INTRODUCTIONS FOR SEVERAL GROUPS AT GTE.

Travelers' Geography

Strategic Mapping has a new product for travelers, an under-\$100 program tentatively code-named PinPoint (the final name was not set at press time). With \$25 data packs for many of the world's major cities, business travelers and vacationers can call up a map of, for example, France, zoom in on Paris, and locate all the Federal Express offices or vegetarian restaurants near Notre Dame. PinPoint displays a scrolling text window next to the map with information such as the FedEx offices' hours and telephone numbers, or current reviews of restaurants. (Strategic says PinPoint data is updated monthly and is supplied by the same company that provides information to American Express and the Sabre reservation system used by many travel agents.) Strategic Mapping, 408/970-9600.—D.L.



THE WINDY CITY. ON THE RIGHT IS A LIST OF CHICAGO JAZZ CLUBS THAT COMES WITH A PINPOINT DATA FILE.

News

TREND

InfoTAC Personal Communicator

For all you PowerBook-freedom junkies, Motorola's Mobile Data Division has devised the InfoTAC, a small wireless data communicator that can act as a two-way pager, or as a modem when attached to a personal computer. The InfoTAC radio packet modem weighs about 1.1 pounds and sends data at 4800 bps, or at 19.2 Kbps under Motorola's proposed RDLAP standard. It can use the ARDIS, Bell/ARDIS, Hutchison Mobile Data, MODACOM, and



MOTOROLA'S INFOTAC IS A RADIO PACKET MODEM THAT CAN ATTACH TO A MACINTOSH.

RAM Mobile Data public radio data networks.

InfoTAC has a small backlit liquid-crystal display (LCD) screen for displaying messages. The battery-operated device comes with an AC adapter, an external battery charger, and an RS-232C cable for hooking up to a personal computer.

InfoTAC will list for \$1350 when it becomes available in late 1992. So now you can get your E-mail most anywhere, even in the middle of the night. Motorola, 800/247-2346.—T.M.

BETA WAIT

Long-awaited products

ACIUS's 4D Server

Shown publicly January 1991. Current ship date projected: after just-announced 4D 3.0 ships.

FoxPro/Mac

Fox Software discussed publicly winter 1990/91. Microsoft acquired Fox earlier this year, and says it will ship FoxPro/Mac "when it's ready."

Interleaf 5

Discussed publicly October 1990. No ship date projected.

Claris's MacWrite Pro

Announced spring 1991. Current ship date projected: end of 1992.

3½-inch optical drive with an average access time of about 43ms and a data-transfer rate of 768K, the company said. The 128Turbo lists for \$1299. DGR, 512/476-9855.—T.M.

THE FUTURE OF CD-ROM IS NOW.

CHOOSING A MOVIE HAS NEVER BEEN EASIER!

TIRED OF STARING AT ROWS AND ROWS OF VIDEOS AT THE RENTAL STORE WONDERING WHAT TO GET? YOU NEED THE *Taste Mate* MOVIE SELECTION SYSTEM. *Taste Mate* USES ARTIFICIAL INTELLIGENCE TO HELP YOU FIND A MOVIE YOU'RE BOUND TO LIKE. SIMPLY ANSWER A FEW QUESTIONS BASED ON YOUR **MOOD** AND *Taste Mate* PROVIDES THE RECOMMENDATIONS.

A MOVIE YOU

Taste Mate

VIDEO-SELECT™

40,000 MOVIE TITLES.

THE DATABASE AND



YOU'LL NEVER RENT

WON'T LIKE AGAIN!

FEATURES THE

DATABASE OF OVER

YOU CAN SEARCH

GET SUMMARIES OF

ANY TITLE, PLUS SEE QUICKTIME PREVIEWS OF **HOT NEW RELEASES**. THE *Taste Mate*

MOVIE SELECTION SYSTEM IS A MUST FOR MOVIE BUFFS AND WEEKEND RENTERS ALIKE. **AND BEST**

OF ALL... IT COSTS JUST \$69.95. ORDER YOUR *Taste Mate* MOVIE SELECTION SYSTEM TODAY!

MACWORLD CD VENTURES. DEFINING A WHOLE NEW GENRE IN CD PUBLISHING.



Call 800-845-1924 Today!

CD RUNS ON ANY COLOR-CAPABLE MACINTOSH WITH MINIMUM 4MB RAM.
*FOREIGN ORDERS PLEASE ADD \$12.50 PER CD. FAX ORDERS CALL 415-543-3984.
MACWORLD CD VENTURES, 501 SECOND STREET, SAN FRANCISCO CA 94107.

Circle 192 on reader service card.

THE FUTURE OF CD-ROM IS NOW.

Warning: Interactive Addiction May Cause Compulsive Attachment To Your CD Player.

HAVE WE GOT YOUR ATTENTION NOW? INTRODUCING TOTALLY ADDICTIVE CD ROMS FROM MACWORLD CD VENTURES. EVERYONE CAN MAKE GREAT MUSIC WITH **Rock Rap 'N' Roll**.

NO EXPERIENCE REQUIRED. **Rock Rap 'N' Roll** TURNS YOUR MACINTOSH INTO A **Hip Music Machine**, AND YOU RUN THE SHOW. THE CD FEATURES HUNDREDS OF ORIGINAL BEATS AND SONGLETS PRODUCED BY A TOP HOLLYWOOD COMPOSER. SIMPLY

DROPTHEBEATSAND
SONG-A-LIZER AND
ASSIGN INSTRU-
ANDSOUNDEFFECTS
YOUR MAC KEY-
ROLL-OVERS ON



SONGLETS INTO THE
YOU ARE ROCKIN'!
MENTS, VOCALS,
TO THE KEYS ON
BOARD AND TO THE
THE SCREEN IN

ONE OF THE **Ten Interactive Rooms Of Unique Sound**. THEN PLAY ALONG WITH THE SONG-A-LIZER. RECORD YOUR SESSION, DIGITIZE YOUR OWN SOUNDS, AND SING ALONG!

Rock Rap 'N' Roll IS A TOTALLY UNIQUE APPLICATION OF INTERACTIVE CD TECHNOLOGY - YOU'LL FIND IT IMPOSSIBLE TO WALK AWAY FROM. **AND BEST OF ALL, THE ULTIMATE MUSIC MACHINE COSTS ONLY \$49.95***. ORDER YOURS TODAY!

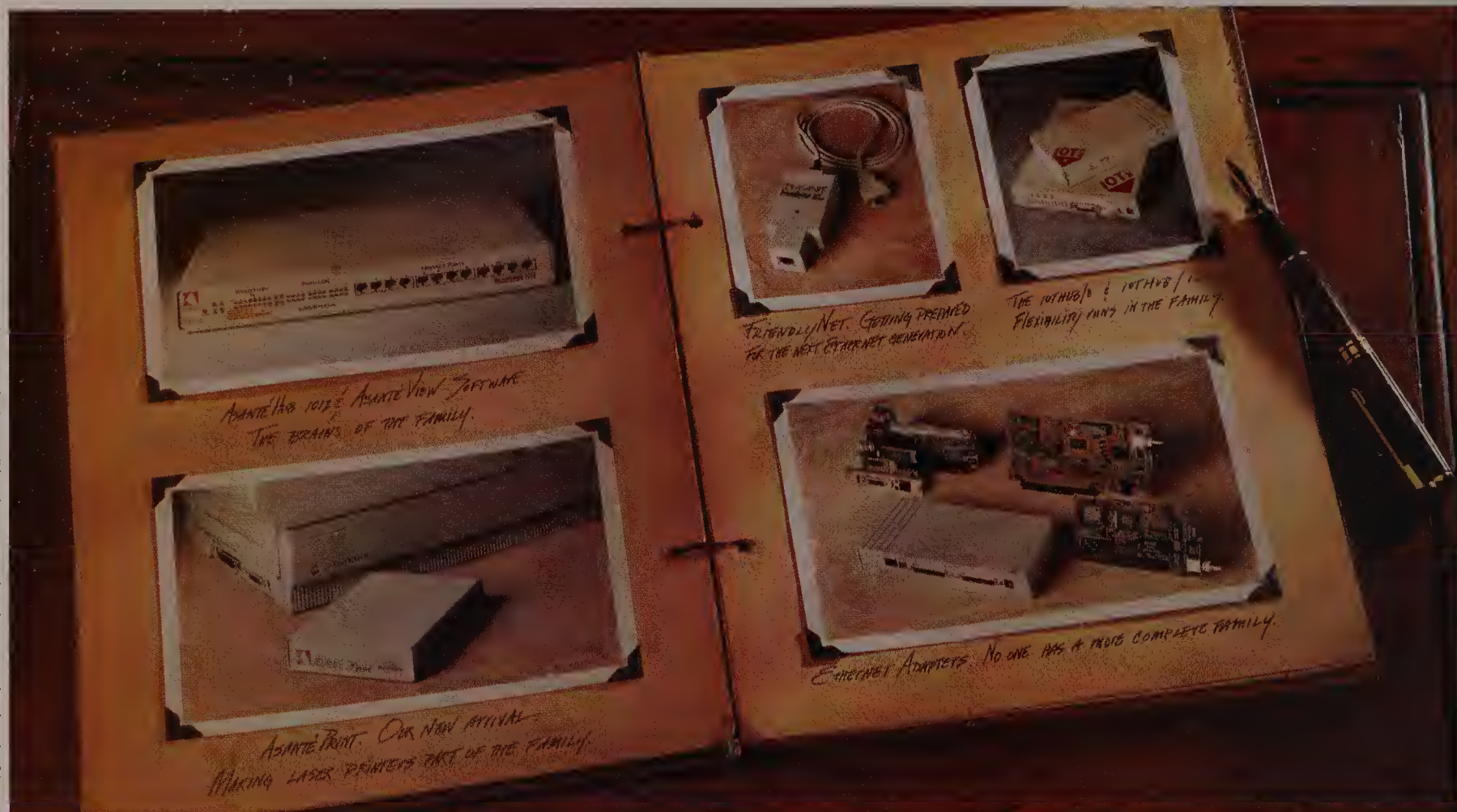


Call 800-845-1924 Today!

CD RUNS ON ANY COLOR-CAPABLE MACINTOSH WITH MINIMUM 4MB RAM.
*FOREIGN ORDERS PLEASE ADD \$12.50 PER CD. FAX ORDERS CALL 415-543-3984.
MACWORLD CD VENTURES, 501 SECOND STREET, SAN FRANCISCO CA 94107.

Circle 194 on reader service card.

© 1992 Asanté Technologies, Inc. Asanté is a trademark of Asanté Technologies. All brand names are trademarks or registered trademarks of their respective holders.



No One Has A More Complete Family Of Ethernet Products Than Asanté.

Choosing the perfect Ethernet® solution is a snap.

Whether you need a single adapter card or a complete system,



"You won't go wrong choosing a 10BaseT card from the Asanté line."
- MacUser

all you have to do is turn to the proven leader in Macintosh® networking. Asanté™.

A Full Line Of Ethernet Solutions.

At Asanté, excellence runs in the family. It shows in everything we do, from the industry's first smart hub with



both in-band and out-of-band network management for both Macs® and PCs using the same GUI, to AsantéPrint, our new Ethernet-to-LocalTalk™ converter for laser printers.

In addition, the Asanté family features a full line of non-intelligent 10BaseT hubs with 8 or 12 ports. And the widest range of

award-winning cards providing Ethernet connectivity for every Macintosh platform—including solutions that will let you connect to future generations of Ethernet.

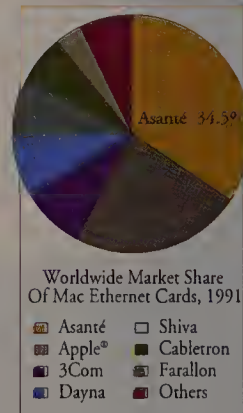
A Fully-Integrated Family.

When you get the Asanté Ethernet family together, you can be sure of seamless networking. That's why we're #1 in the eyes of independent industry analysts, and with LAN managers everywhere.

So if you want a picture-perfect Ethernet network, all you need to remember is Asanté. We also offer a full line of

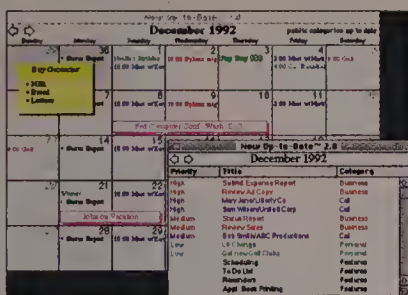
Token Ring® products for the PC and Macintosh. Resellers:

Asanté products are available from Ingram Micro, Merisel and Tech Data.



Source: International Data Corporation, June 1992



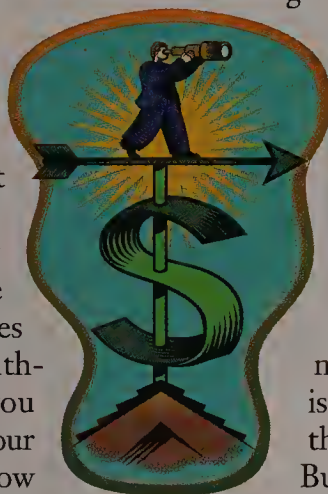


A NOW-UP-TO-DATE CALENDAR WITH A LIST OF EVENTS THAT HAVE BEEN CATEGORIZED AND SORTED BY PRIORITIES.

Money News

WealthBuilder is being upgraded to version 2.0. WealthBuilder is designed to guide users through setting up investment goals and acting on them. Version 2.0's biggest change is integration with Reality Technologies' online databases of securities information. WealthBuilder guides you through setting up your goals and deciding how you want to allocate your assets before you go online to research securities.

WealthBuilder lists for \$169.95 with one month of online time. After the first month,



online access is \$9.95 per month for portfolio updating and stock, bond, and mutual fund quotes; \$17.95 per month buys the above plus access to historical data with risk ratings, performance ratings, and so on (CD and money-market information is not yet available for the Mac). WealthBuilder users can get explanations of financial strategies (but not specific recommendations) for \$9.50 per call, or \$4.95 per E-mail message. Reality Technologies, 215/387-6055.—D.L.

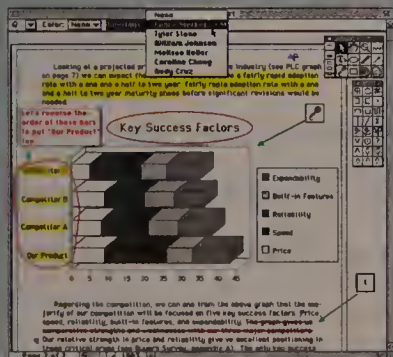
PETER HOEY

TREND

Mainstay Stays the Course

Though we're still awaiting the paperless office, Mainstay is upgrading MarkUp and Marco Polo—two products that bring paper-free living a step closer.

MarkUp is an on-screen, multiuser document-editing tool. Version 2.0 can merge layers, allowing, say, an editor to work at home and later add that work to the main document on a server. MarkUp supports voice notes and QuickTime and can incorporate a run-time into documents so they run without MarkUp installed. It lists for \$195.



MARKING UP A GROUP DOCUMENT WITH MARKUP 2.0. EACH PERSON CAN ADD TEXT OR COMMENTS TO A SEPARATE LAYER.

Marco Polo is a database for archiving and searching the images and text in digital documents. Version 2.0 supports scanning of paper documents; archives voice and QuickTime data; and provides seven fields for adding keywords to files, each of which can contain 20 pre-defined terms. The price was not set at press time. Mainstay, 818/991-6540.—D.L.

Up-to-Date Again

Now Software is developing version 2.0 of Now Up-to-Date. Version 1.0's confusing metaphor of creating a different calendar for each type of event gives way to a more standard way of categorizing different events and filtering for the ones you want to see. Other new features include the ability to reconcile shared calendars after people who are temporarily disconnected from the network have changed their schedules; a to-do list with scheduled and unscheduled items; replacement of the Reminder Control Panel with Now Utilities' AlarmsClock; and much-improved printing features. Now Up-to-Date 2.0 lists for \$99 for one user; multiuser packs are less per user. Now Software, 503/274-2800.—D.L.



VIRUS WATCH

CURRENT VIRUSES, TROJAN HORSES, AND WORMS

T4-A, T4-B

TYPE: Virus
FIRST LISTED IN VIRUS WATCH: 10/92
INFO: Initially discovered in a game called GoMoku
IMPACT: Both versions of T4 damage system files and applications

ChinaTalk

TYPE: Trojan Horse
FIRST LISTED IN VIRUS WATCH: 10/92
INFO: ChinaTalk is an INIT that comes with a read-me file that claims it provides a female voice for MacinTalk
IMPACT: Deletes the contents of disk drive on restart

INIT 1984

TYPE: Virus
FIRST LISTED IN VIRUS WATCH: 8/92
INFO: Infects INITs; becomes active only on Friday the 13ths
IMPACT: Destroys files and changes file and folder names and attributes to random garbage

Code 252

TYPE: Virus
FIRST LISTED IN VIRUS WATCH: 8/92
INFO: Displays a message telling user it is destroying contents of hard drive
IMPACT: After displaying message, it deletes itself without causing damage; infected Macs may behave erratically

News

Boom or Bust

THE SUPERSONIC CONCORDE flies over the ocean, staying away from land as much as possible to avoid shattering people's nerves with its sonic booms. Now NASA-funded scientists at the Georgia Institute of Technology are using Macs to study sonic booms.

The scientists wrote custom Macintosh software that simulates sonic booms and analyzes their frequencies using an off-the-shelf digital signal processing board. After drawing booms with a mouse or entering them as mathematical formulas, the researchers send the booms to a wall of monster speakers that are several hundred times more powerful than average living-room speakers. Volunteers at-

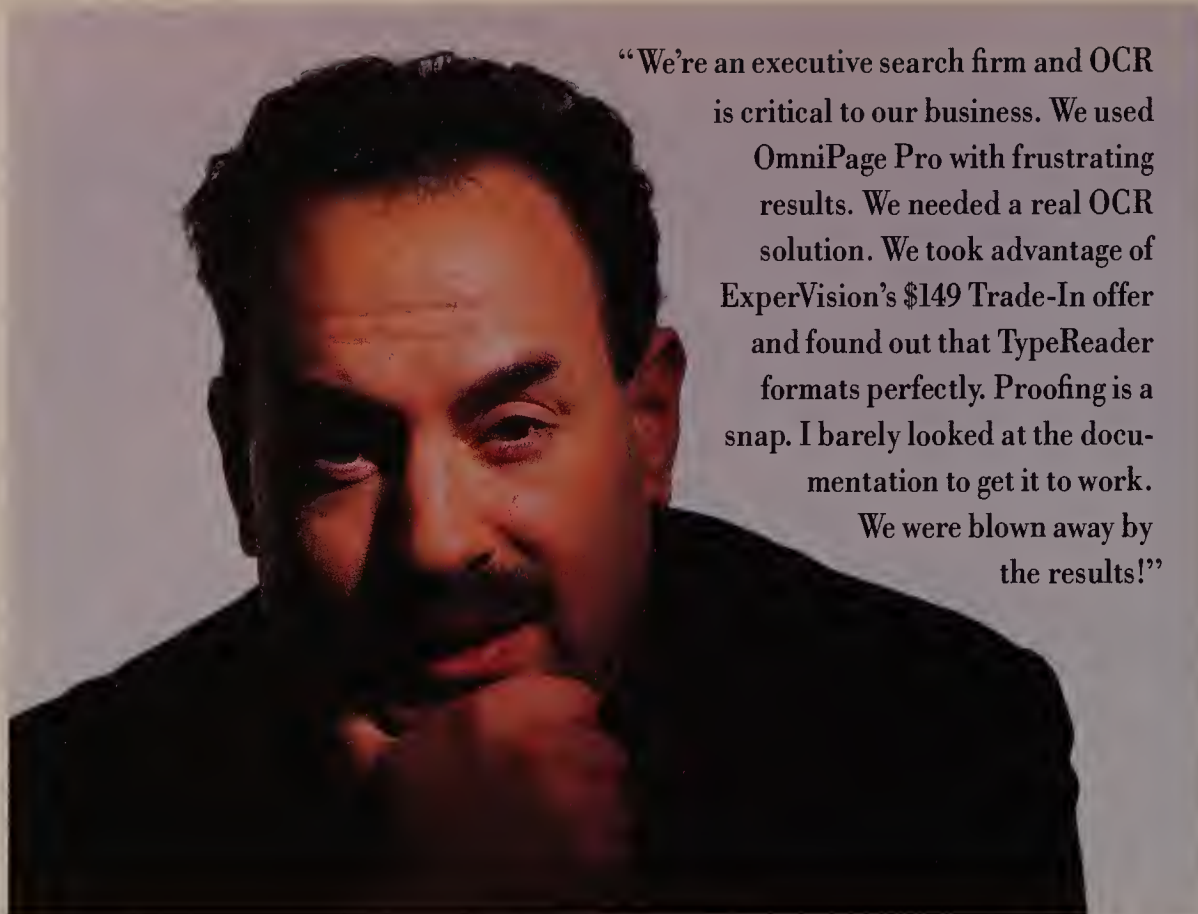


TOMMY THOMPSON

KRISHAN AHUJA (FRONT) AND CLARK STEVENS WITH A WALL OF MONSTER SPEAKERS THAT SIMULATE SONIC BOOMS.

tempt to read or otherwise survive amid a range of sonic booms, then report on which booms were the most tormenting. The researchers are trying to figure out which booms are more tolerable, and why, and hope eventually to influence supersonic aircraft design.

—ANN GARRISON



"We're an executive search firm and OCR is critical to our business. We used OmniPage Pro with frustrating results. We needed a real OCR solution. We took advantage of ExperVision's \$149 Trade-In offer and found out that TypeReader formats perfectly. Proofing is a snap. I barely looked at the documentation to get it to work. We were blown away by the results!"

STEVE BRODY, PRESIDENT—BRODY & ASSOCIATES

FINANCIAL REPORT

Domestic Operations

Volume 1, Issue 2

Projections indicate strong economic growth

Interest rates may continue to fall, but there's growing belief in the bond market that it may not go on much longer. Many money managers are looking for another cut in short-term rates after the next meeting of the Federal Open Market Committee, the policy-making arm of the Federal Reserve.

With confusion in the European currency markets, the additional entry into the American presidential race, and fears about possible attempts to stimulate the economy with tax cuts and increased government spending, few experts expect any substantial decline in rates, at least through the end of the year.

A number of financial experts believe that the political uncertainties could push rates up, while the economic realities will hold rates down. Any major drop in bond yields won't happen for the next few months. The range may be 7.125% to 7.5% for the 30-year bond.

Like a growing number of other money managers, the bond market rally may not be on its deathbed, but it is showing signs of decline.

Many bond investors believe that the Fed has little operating room for further rate cuts. One more cut is likely, they say, before the presidential election and perhaps sooner. But after that, there will be very little left to cut, especially if certain European countries continue to keep their interest rates stubbornly high.

Fewer viable bargains are being found in closed-end funds based on recent evaluations.

Bargains among closed-end funds have become even more scarce over the past three months, as fund stock prices moved higher relative to their underlying per-share portfolio value. Closed-end funds have a fixed number of shares outstanding, which makes them a stock exchange. A fund's shares can sell above or below the value of the fund's underlying portfolio value. A fund that sells above its portfolio value is said to be at a "premium," while one selling below is at a discount.

In the third quarter of this year, the average discount among domestic closed-end stock funds narrowed by 1.0 percentage point to a discount of 1.7%. Through Sept. 25, the average domestic closed-end stock fund gained 2.8% in the third quarter, roughly in line with the stock market.

Leveraged municipal bond funds had an average total return of 3.5% in the quarter through November, compared with 3.1% for unleveraged municipal funds. Leveraged municipal funds sold at an average premium of 2.7%, while unleveraged funds came in at a lesser premium of 1.3%.

Region	Total	Change	Expected
Northeast	250.5	+6.25%	+2.61%
West	232.0	+3.48	+2.50
South	186.8	-2.39	-2.25
Northwest	145.5	-3.74	-2.75
Southeast	190.6	-3.39	-2.85

Economic picture a mix of ups and downs

The current U.S. economy, like a boat on a still day, is localized. As a result, there is no clear movement in the economy one way or the other.

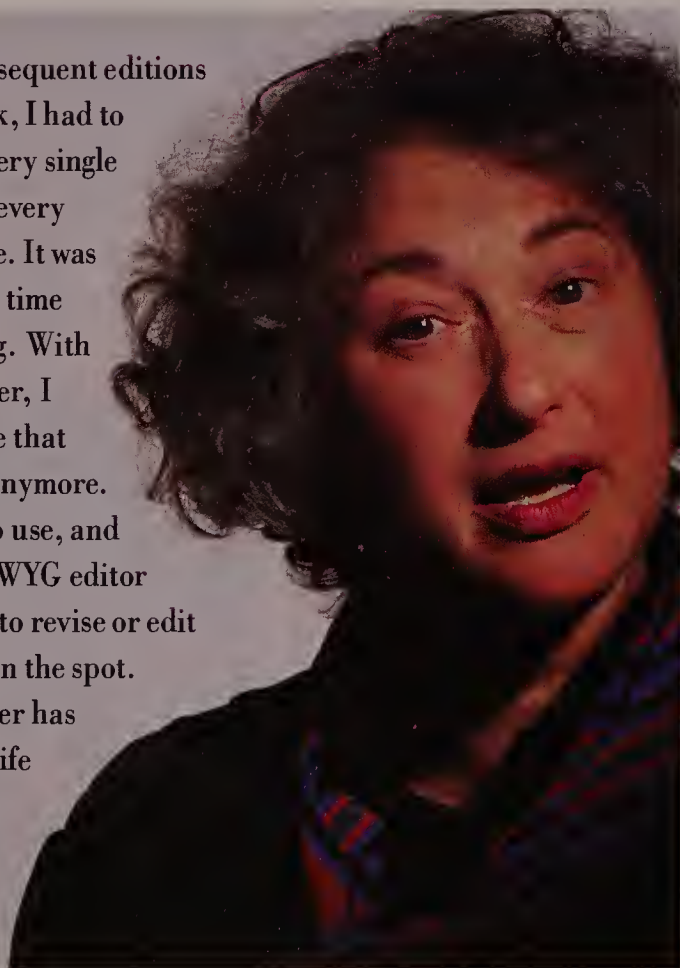
With a month to go before the presidential election, the most recent indicators point to stagnation in the overall U.S. economy and a contraction in the manufacturing sector. U.S. employers pared 57,000 jobs last month after cutting 128,000 the month before, according to the Labor Department. Even discounting the loss of 97,000 jobs resulting from the end of the federal summer job program, employers grew only 40,000 last month to 108.4 million. The unemployment rate fell slightly to 7.5% of the work force from 7.6% in August, but analysts didn't see that as a positive sign.

Meanwhile, the latest disappointing sign from the nation's manufacturing facilities, the Commerce Department said Friday that new orders for factory goods fell 1.5% in August, the third decline in the past four months.

FINANCIAL REPORT REPRESENTS—This material is available through the Financial Research Corporation website only. It may not be copied or otherwise utilized without written authority.

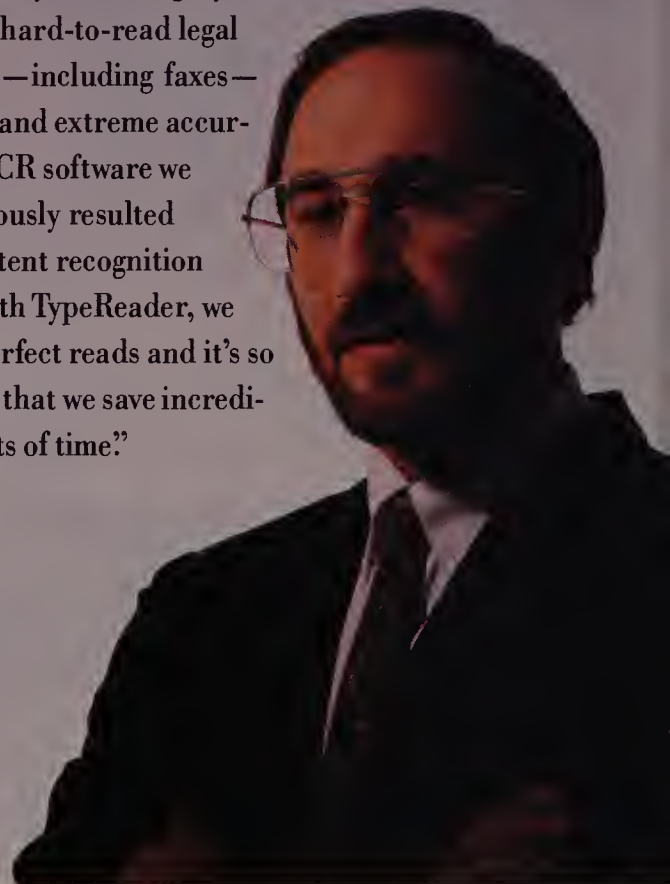
With a push of a button, a Mac, and a scanner, TypeReader recognizes any document—retaining columns, font styles of various sizes for maximum productivity.

"With subsequent editions of my book, I had to re-type every single word and every single page. It was extremely time consuming. With TypeReader, I don't have that problem anymore. It's easy to use, and the WYSIWYG editor allows me to revise or edit my work on the spot. TypeReader has made my life much easier."



E. BARBARA PHILLIPS, PROFESSOR AND AUTHOR—BERKELEY, CALIFORNIA

"Our company scans lengthy and sometimes hard-to-read legal documents—including faxes—which demand extreme accuracy. The OCR software we used previously resulted in inconsistent recognition quality. With TypeReader, we get near perfect reads and it's so easy to use that we save incredible amounts of time."



NEIL ARESTY, PARTNER—LEGAL COMPUTER SOLUTIONS

TypeReader isn't just an extraordinary OCR product. It's an extraordinary OCR tool that helps managers, owners and professionals get their work done faster. With better results than they ever thought possible. These OCR users and many others became believers when presented with the opportunity to compare leading OCR software (including OmniPage® Professional) to TypeReader software from ExperVision.

Their words speak for themselves, so we won't burden you with a lot of sales hype. We'll simply tell you that by acting now, you'll pay only \$149 for TypeReader with proof of ownership of another OCR software product.† If you're not a current OCR software user, you'll get a \$100 rebate when you purchase TypeReader.

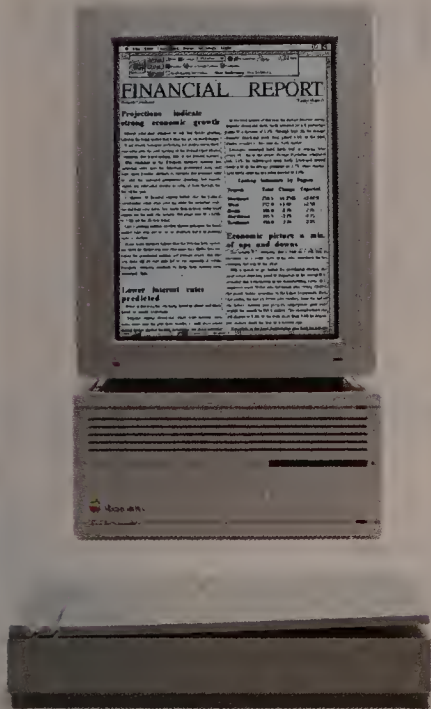
You can't afford not to compare TypeReader.

"We don't have a great deal of time to waste at my firm. We scan a variety of mail lists and manuals that consist of some fairly complex columns, tables and tabs. Compared to other leading OCR software, TypeReader is the best. Its flexibility and capacity to export to a variety of software applications is invaluable."



ELIZABETH F. WAJER, FOUNDER — WORDS-WORTH, INC.

WE COMPARED OMNIPAGE® TO TYPEREADER® WE'RE TYPEREADER USERS NOW.



"We tested the daylights out of OmniPage Pro, WordScan Plus and TypeReader. We were so impressed with the accuracy of TypeReader, we had to go with it. The superior formatting and extreme ease-of-use made it the most useful OCR product we've seen."

MICHAEL ARATA, PRESIDENT — ANDERSON & ARATA, INC.

InfoWorld calls it "...a quicker, better OCR with superb formatting?" Users call it the best OCR product they've ever used! We know you'll agree. That's why TypeReader comes with a 30-day money back guarantee.

Call today at **1-800-562-8882** and become one of the growing number of zealous TypeReader users. For technical information and the name of your nearest reseller, call **1-800-732-3897**.

EXPERVISION

†Title page from OmniPage, OmniPage Professional, OmniPage Direct, WordScan, WordScan Plus, ReadRight, Read-it!, AccuText, Recognize, Recognita Plus or Perceive documentation required. Offer expires 1/31/92 and may be revised without notice. ExperVision, the ExperVision logo, and TypeReader are trademarks of ExperVision, Inc. All other names are trademarks of their respective holders. ©1992 ExperVision, Inc. All rights reserved. ExperVision, 3590 N. First Street, San Jose, CA 95134 (408) 422-9383.

Circle 170 on reader service card.



ROSEMARY WILTON

NEW MEMBERS OF QUANTUM'S PRODRIVE SERIES RANGE IN CAPACITY FROM 525MB TO 1.2GB, WITH ACCESS TIMES OF 10MS.

Hard Drives with Clout

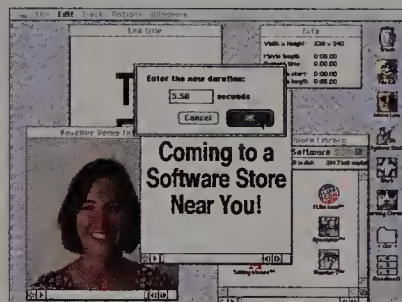
Drive-industry leader Quantum Corporation has unveiled three more high-capacity 3.5-inch hard drives in its ProDrive series: the ProDrive 1225, ProDrive 700, and ProDrive LPS 525, which store 1.225GB, 700MB, and 525MB, respectively. The new drives have effective average access times of 10ms and can transfer up to 10MB per second when using a Fast SCSI board, according to Quantum. They are also all compatible with SCSI-2 boards.

The new drives should appear in products from other vendors before the end of the year. Prices should range from approximately \$1145 for the ProDrive LPS 525 to approximately \$1795 for the ProDrive 1225.—T.M.

Mac as Camera?

Spectator is a utility for recording what takes place on the Macintosh screen as a QuickTime movie and then editing the bits and pieces into demonstrations and tutorials, especially useful for Mac software training. Spectator clips can be combined with other QuickTime movies; still frames can be inserted between QuickTime movies; and titles can be superimposed on specific frames or series of frames. Spectator also provides 16 tracks of audio for recording and syncing spoken narration with a clip, or importing music and other sound

files. You can incorporate a run-time version of Spectator into Spectator files; even users who don't have Spectator can run these files. It lists for \$149.95 from Baseline Publishing, 901/682-9676.—D.L.



CREATING AN ON-SCREEN AD WITH SPECTATOR BY SPLICING A QUICKTIME MOVIE INTO A SERIES OF SCREEN CAPTURES.

PLI 120MB Drive for PowerBooks

FOR POWERBOOK USERS WHO WANT MORE internal storage, Peripheral Land Inc. (PLI) has introduced the PLI 120MB 2.5" Turbo, a 120MB internal hard drive for the PowerBook 140 or 170. The drive sports a 25ms average access time, a sustained data-transfer rate of 1.8MB per second, and a 32K buffer for high performance, according to the company.

The tiny hard drive weighs only about 4.8 ounces. Available now, it carries a suggested retail price of \$999. PLI, 510/657-2211.—T.M.



ROBERT PERRY

PERIPHERAL LAND'S PLI 120MB 2.5" TURBO FITS INSIDE A POWERBOOK 140 OR POWERBOOK 170.

SCSI-2 Board for Radius Rocket

Radius has announced the SCSI-2 Booster, a piggyback board that improves the speed of data transfers on the Radius Rocket, the company's 68040-based accelerator for NuBus Macs. Intended for use with high-speed SCSI peripheral devices, the SCSI-2 Booster incorporates a 40MHz controller chip that lifts the data-transfer rate as high as 7MB per second in burst mode or 4.5MB sustained, more than four times the rate of the NuBus built into a Mac II, according to Radius.

The Rocket accelerator is designed so that multiple Rockets can operate in a single Mac, or, using RocketShare software, be accessed by multiple users over a network. The SCSI-2 Booster lists for \$299 and was slated to ship by the end of October. Radius, 408/434-1010.—T.M.



TURKEY SHOOT

DESIGN FLAWS NOTED

Multiple Keyboard Layouts In System 7 Apple added an undocumented keyboard command for switching between U.S., Dvorak, and international keyboard layouts. Unfortunately, the command, ⌘ -option-spacebar, is the same command Adobe Illustrator and Aldus FreeHand have been using for years to zoom out.

Apple PowerBook Modems Planning to take your PowerBook to Japan? Don't count on sending faxes home. It is possible, but first you have to open up the PowerBook and reset a jumper on the modem—which violates the warranty.

Macworld will send you a Turkey Shoot T-shirt if we shoot your turkey in this column. See *How to Contact Macworld*.

TREND

Data Insights

Those who quest for juicy information among the thorny vines of corporate data are having an easier time of it lately, thanks to simplified data-analysis tools like Dimensional Insights' CrossTarget.

CrossTarget comes in three pieces: Data Integrator is an optional tool for extracting and combining data from Mac and non-Mac databases but requires some expertise to set up; Builder automatically indexes and cross-references data; and Diver is for examining the data. Unlike some competing products, CrossTarget can compare and graph any set of variables with any other set. CrossTarget can work with multi-dimensional data (for example, sales by product by region by quarter) and hierarchical data (for example, sales districts that roll up into sales regions). Data Integrator, Builder, and Diver are available for the Mac, Windows, and Unix. Diver is \$750 on the Mac; Builder and Integrator pricing depends on the platform and number of users. Dimensional Insights, 617/229-9111.—D.L.



PETER HOEY



How to Try Before You Buy.

Simply go to your local Macintosh Reseller and ask them to run The Resource!

Would you buy shoes without trying them on? Probably not. Yet how often do you buy a Macintosh® product without some hands-on experience? Most of the time, right? Pretty risky proposition with hundreds, maybe thousands, of dollars at stake.

Now there is a better way...

"With interactive demos, product info and free trial software all in one place, this is one great CD...keep it coming!"

Paul Micalizio, Store Manager
MACadam Computers, San Francisco



The Macworld Resource is an Interactive Showroom that provides information, demonstrations and free trial software—all of the tools you need to make an intelligent purchase decision.

Bring Floppies—Take Free Software

The Resource employs the latest multimedia technology to deliver the kind of information you need when you need it most, in the retail showroom. You can print literature, view interactive demos, compare product features and take home free trial software. So don't leave home without a few blank floppies.

In-Depth Information on Hot Products

You'll find the hottest products from top Macintosh software and hardware companies:

SONY®



ALDUS®



SOFTWARE
VENTURES

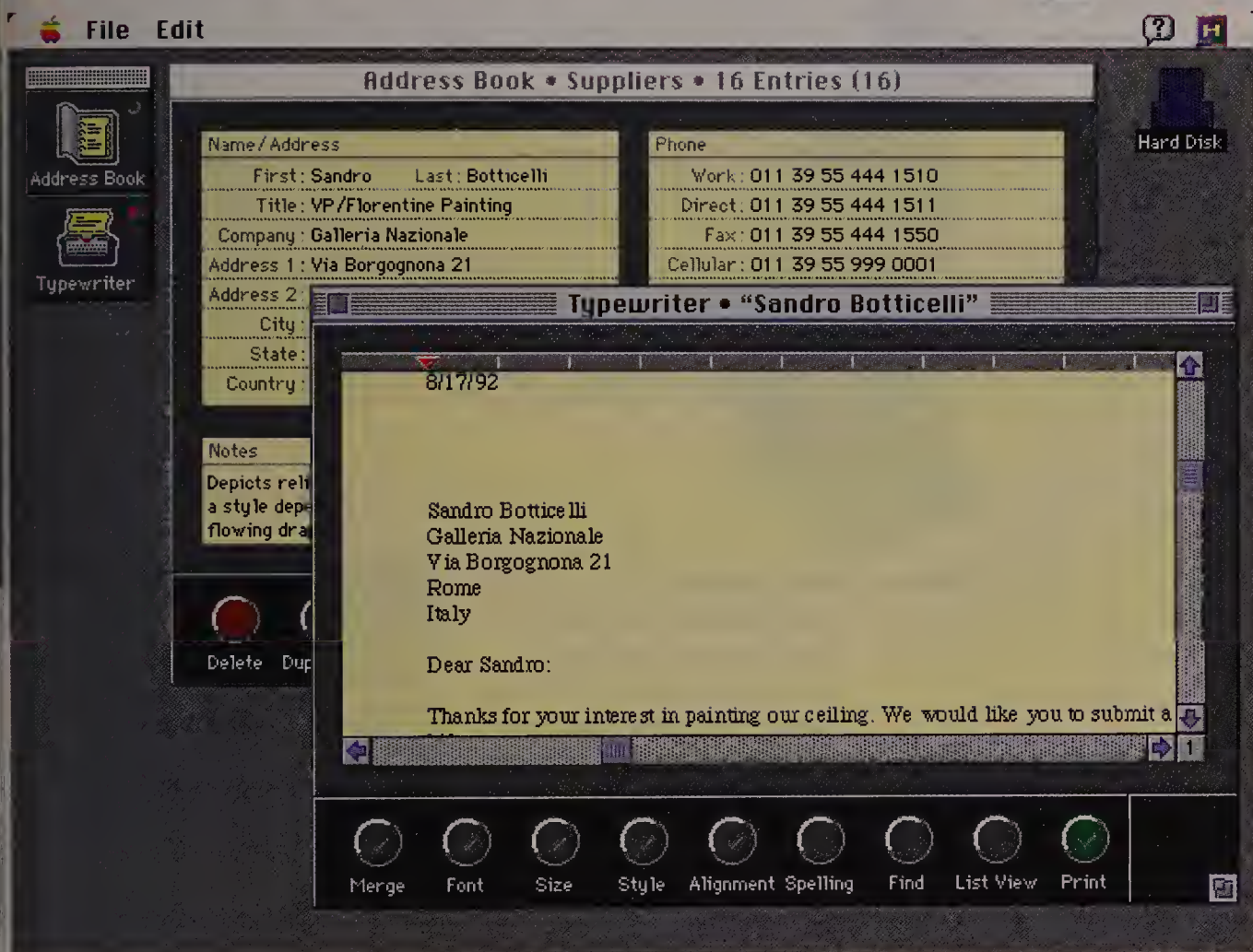
**FRAC-
TAL
DESIGN
CORPORATION**

Plus a Directory of Thousands

The Resource features a database of thousands of the latest Macintosh products. You can easily locate listings and automatically generate a printed request for more information.

For your own subscription to The Macworld Resource CD™ call toll-free: 1-800-845-1924.

Goodbye hassles, Hello simplicity



Saves time and hassle

In a world saturated with everything-but-the-kitchen-sink software, Atelier Hello is a breath of fresh air. Our design stresses usability and customization. You don't have to be a rocket scientist to use Atelier Hello. It's aimed at professionals who need to get the job done today.

Atelier Hello features two basic communication tools: Address Book and Typewriter — an integrated word processor.

Typewriter has all the features you really need: selection-range text formatting, find and replace, and a fast 100,000-word spelling checker. It also automatically generates letters and memos including names and addresses with one keystroke. Typewriter even adds "Sincerely," plus your name to close your letters. Now that's convenience.

Previously painful tasks, such as mail merge and importing,

are simple. Even the manual is designed for comprehension. You'll find Atelier Hello's attention to detail makes you more productive, because you spend less time figuring out how to use it.

Great value

We're so confident that you'll be more productive with Atelier Hello, we back it up with a 30-day no-questions-asked, money-back guarantee. At its attractive promotional price of \$65*, there's no better value in the Mac market, period.

Corporate and university volume buyers can take additional discounts through special volume-purchase arrangements.

So if you're interested in boosting productivity while saving time and money, and in jumping on the telecommunication bandwagon, say Hello.

21607 Stevens Creek Blvd.
Cupertino, CA 95014
408.366.6900
fax: 408.366.6905
AppleLink: ATELIER

**A new kind of company:
innovation, usability, value**



Atelier Hello is a trademark of Atelier Systems Inc.
All other trademarks belong to their respective holders.

We believe it's high time for innovative, well-designed and fun-to-use software that returns simplicity and spirit to the platform that invented plug-and-play. Software that can be recommended with confidence to advanced and novice users alike.

So we designed Atelier Hello from the ground up to be different. It's the world's first personal communication manager — a perfect complement to emerging phone, fax and wireless technologies.

Atelier Hello helps PowerBook and desktop Macintosh users communicate efficiently via letter, phone, or fax. Once your letter or memo is composed, Atelier Hello effortlessly prints envelopes and labels. With upcoming "docking" modules and a fax modem, it will even transmit documents at the push of a button.

Say Hello for only

\$65

To order call

MacWAREHOUSE

800.255.6227

24 hours a day, 7 days a week

For a free brochure call

800.800.0412

Mon-Fri 8am-6pm PST

*List price: \$99. Atelier Hello comes with a 30-day, no-questions-asked, money-back guarantee.

Circle 216 on reader service card



(Social Security #566-39-2966)

You'll try almost anything.

You've even thought about claiming the pooch as a dependent. We understand completely. Because from the dawn of taxation, mankind has been striving to keep more of its hard earned money. That's why we developed MacInTax®: America's #1 tax software.

MacInTax is the world's easiest to use and most complete tax preparation software. With

our new EasyStep™ system, just gather your tax records and enter the data. MacInTax does the rest.

It performs all the calculations, checks for accuracy and consistency and transfers every number to the proper line on the proper form. All that's left to do is print out your IRS approved tax form (or file electronically). Sign it, and drop it in the mail.

And MacInTax is the clos-

est thing to having a tax advisor right on your desk. It helps you identify every deduction you can claim. It even alerts you to things that could trigger an IRS audit.

If you need help, over 100 tech support people are just a phone call away. So making a mistake is virtually impossible.

That's why more than 7 million tax returns were filed with MacInTax last year.



Order your copy of MacInTax now for \$59.95. Call us at 1-800-964-1040 ext. 3114. Or see your software dealer. We'll also send a FREE copy of SimCity®, by MAXIS® (a \$49.95 value) when you place your order.**

So call now. And get the tax break you deserve without going to the dogs.



MacInTax.
MacInTax by ChipSoft

**Plus \$7.00 S&H. For retail purchases attach a copy of sales receipt and enclose \$7.00 U.S. for shipping and handling. (Check or money order payable to ChipSoft.) Send to: ChipSoft, SimCity offer, P.O. Box 85709, San Diego, CA 92186-1966. All prices are in U.S. dollars. Dealer prices may vary. ©1992 ChipSoft, Inc. All trademarks are the property of their respective manufacturers. *SimCity, the award-winning city simulator from MAXIS.

Starlight's Video Network

Starlight Networks has introduced StarWorks, software that runs on a 486-based DOS machine and supports a digital video network that can include Macs and other computer types. Intended for video production groups, StarWorks supports up to 20 users over NetWare, LAN Manager, NFS, or AppleShare without interfering with the normal operation of the existing network. The Unix-based software is compatible with multiple video standards including Apple's QuickTime, Intel's DVI, and Microsoft's AVI. Using proprietary Streaming RAID (Redundant Array of Inexpensive Disks) software, StarWorks rapidly accesses images stored on multiple drives, according to Starlight.

StarWorks comes in two versions; StarWorks-10 supports data transfers up to 12Mbits per second (or about 10 simultaneous users), and StarWorks-20 supports data transfers as high as 25Mbits per second (about 20 users). For faster image transmission, both versions of StarWorks are compatible with JPEG and MPEG image-compression algorithms. StarWorks-10 lists for \$9950; StarWorks-20 lists for \$18,495. Both are available now. Starlight, 415/967-2774.—T.M.

SuperMac's Dye-Sub Printer



SEAN SULLIVAN

THE SUPERMAC PROOFPOSITIVE DYE-SUBLIMATION PRINTER INCLUDES AN EFICOLOR COLOR-MATCHING CONTROLLER.

THE PROOFPOSITIVE, SuperMac's first printer, uses a dye-sublimation engine to produce near-photographic-quality color images with EfiColor color matching. ProofPositive comes in two main versions, the ProofPositive Full-Page Printing System and the ProofPositive Two-Page Printing System. Both produce full-bleed prints at 300 by 300 dpi with continuous-tone color. A typical first single-page print at full bleed takes about ten minutes or less, according to SuperMac.

With a PostScript Level 2 controller and NuBus interface board, the ProofPositive Full-Page Printing System lists for \$9999, and the ProofPositive Two-Page Printing System lists for \$19,499. With a SCSI interface board instead of the NuBus

interface, either printer costs \$500 more. Either interface board takes up a NuBus slot.

The printers do not include any RAM, because they require a host Macintosh. The host Mac, which must have 17MB of RAM, does the processing while still supporting other applications. SuperMac will also sell the ProofPositive Full-Page Printer, which lists for \$6999 without a PostScript controller or either of the interface boards. All the models should be available by January 1993. SuperMac, 408/245-2202.—T.M.

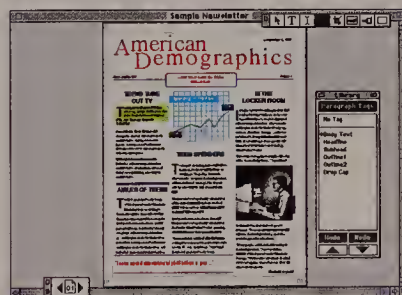
Publish It Easy, Color It Revised

Timeworks is developing Publish It Easy 3.0 and is publishing Color It 2.0.

New features in Publish It include: multiple ruler guides, more drawing tools, paragraph styles for text, access to image-control tools after placing an image (it can import color TIFF images), sizing and positioning of grouped objects, and alignment controls.

Color It is developed by MicroFrontier, which develops and publishes the top-notch gray-scale editor Enhance. Color It 2.0 supports pressure-sensitive tablets, QuickTime compression, and NTSC filtering; provides a virtual-memory scheme that is much faster than System 7's; provides a polygon-selection tool and can lighten, darken, or blend selected areas; has direct scanner support; and works with Photoshop plug-ins.

Publish It Easy 3.0 lists for \$199.95, and Color It 2.0 lists for \$299.95. Timeworks is at 708/559-1300.—D.L.



USING THE NEW PARAGRAPH STYLES CAPABILITY TO FORMAT BODY TEXT IN A PUBLISH IT EASY 3.0 DOCUMENT.

J U S T F O R F U N

Star Trek: The Screen Saver

Not content with having After Dark just save the screens of mere terrestrial Macs, Berkeley Systems will take to the stars with Captain Kirk when Star Trek: The Screen Saver boldly goes where no screen saver has gone before. The 15 to 20 user-modifiable modules include



tribbles in the Klingon ship; Spock walking about blasting his phaser; and the Captain and Scotty talking over the intercom. You can also prove yourself a true Trekkie with the Star Fleet Academy Final Exam trivia quiz. Star Trek: The Screen Saver will list for \$59.95. Berkeley Systems, 510/540-5535.—D.L.

News

3M Projection Panels

3M Visual Systems Division has brought out the 3M Brand Model 5300 and Model 5900 LCD projection panels for PCs and Macs. Both devices measure 10.4 inches diagonally and use active matrix LCDs to display thousands of colors (the Model 5300 shows about 24,000 colors and the Model 5900 shows about 227,000 colors). Both enable users to reveal a screen from top to bottom or left to right, or to blank the screen to prevent distractions during discussion.

The Model 5300 has a suggested list price of \$6795 and should become available in October; the Model 5900 lists for \$8995 and should begin shipping in November. 3M, 800/328-1371.—T.M.

The Macintosh Telephone

PHONEPRO ISDN is software for developing Mac-based systems that merge telephones and computers, such as voice mail, fax response, and order entry. PhonePro's iconic programming language provides about 50 functions—for example, answering the line or branching to a subroutine—to string together in a flowchartlike interface, and a simulation environment for testing programs before running them on a real telephone system.

PhonePro is \$450 and requires an Apple ISDN board in the Mac. For \$950 Cypress Research Corporation sells a software-hardware combo for completely analog phone systems. Cypress is also working on run-time software and plans to incorporate voice-synthesis and speech-recognition capabilities when Apple supports those technologies. Cypress, 408/752-2700.—D.L.

9 OUTBOUND NOTEBOOK FEATURES YOU CAN'T GET IN AN APPLE POWERBOOK

1. UPGRADEABLE NOT DISPOSABLE.

The Mac®-compatible Outbound™ Notebook System lets you "mix and match" the CPU, hard drive, and memory BEFORE AND AFTER YOU BUY. So whatever model you choose, you can upgrade it simply and easily by installing low-cost modules.

2. 40 MHZ PERFORMANCE.

MIX AND MATCH

- CPUs at 25, 33 and 40 MHz
- Hard drives from 40 MB to 220 MB
- RAM from 2 to 14 MB

With the introduction of the 2030V, you can now get an Outbound that's faster than any PowerBook™.

3. TRUE NOTEBOOK SIZE.

Small enough to fit into most briefcases, all models measure 8.5 x 11 x 2.1 inches and weigh only 6.25 pounds.

4. BIGGER SCREEN.

The 640 by 480 backlit LCD lets you view 5 more lines of text than the Apple PowerBook 145 and 170.

5. FULL SIZE KEYBOARD.

You get a full-size, silent keyboard instead of a reduced-size PowerBook keyboard.

6. INTERNAL FLOPPY STANDARD ON ALL MODELS.

Wherever you are, you'll always have a floppy drive that works with high and low density Macintosh® and MS-DOS® diskettes.

7. STANDARD SCSI PORT.

Every Outbound has the same standard SCSI connector found on all desktop Macs.

8. SUPPORTS SYSTEMS 6 AND 7.

Unlike PowerBooks, Outbound Notebooks run both space-saving System 6 and feature-packed System 7.

9. OTHER NIFTY THINGS.

Inexpensive standard dynamic RAM SIMMs—a detachable carry strap—MIDI software compatibility—SCSI docking capability—built in TrackBar™ pointing device—internal microphone and it runs on standard, readily available camcorder batteries.

• • • • •



FREE
UPGRADE
SPECIAL*

NEW!
40 MHZ
MODEL
FASTER
THAN
ANY
POWERBOOK!

THE EXPERTS AND USERS LOVE OUTBOUND NOTEBOOKS.

Macworld Magazine says "If raw power is what you seek in a Macintosh notebook, Outbound's Notebook System...is the hands-down choice." And BYTE concluded "For me, the Outbound Notebook is the better choice." R.R. of Germantown, TN wrote "After nearly a month of use I continue to appreciate the remarkable performance of my new Outbound." K.B. of Merritt Island, FL told us "I really must congratulate your company on creating a wonderful machine."

Why spend thousands of dollars on technology you can't upgrade? Our Notebooks have been upgradeable from the very beginning. Get an Outbound Notebook today, right from the folks who make it! Just call toll-free and use your credit card. Or ask about our low-cost financing.

ASK ABOUT OUR UPGRADE SPECIALS.

ORDER TODAY: 1-800-444-4607

Call Outbound for the dealer nearest you. 7 a.m. to 6 p.m. Mon.-Fri. and 9 a.m. to 3 p.m. Saturdays Mountain Time. Overnight shipping available.
GSA GSOOK92AGS61



Outbound Systems, Inc.
4840 Pearl East Circle
Boulder, CO 80301
Tel 303.786.9200
Fax 303.786.8611

10 DAY MONEY BACK GUARANTEE AND ONE YEAR WARRANTY

*For a limited time, receive a free 40 MB drive upgrade or processor upgrade on selected models.



Technical specifications, offer and price subject to change without notice. The Outbound name, logo and TrackBar are trademarks of Outbound Systems, Inc. Apple, Macintosh and Mac are registered trademarks and PowerBook is a trademark of Apple Computer, Inc. MS-DOS is a registered trademark of Microsoft Corporation. All other brand and product names mentioned herein are trademarks or registered trademarks of their respective holders.

Circle 23 on reader service card



PAUL BERG

THE LAPIS DUAL PAGE GRAY SCALE DISPLAY IS A 19-INCH MONITOR WITH 1024 BY 848 RESOLUTION.

Lapis Monitors

LAPIS TECHNOLOGIES has come out with the PowerBase I, a SCSI adapter that supports an external large-screen monitor for the PowerBooks, and the Dual Page Gray Scale Display, a 19-inch monitor for Macs. The Power-Base I adapter is compatible with the PowerBook 100, 140, and 170 and with compact Macs that have SCSI ports. The monochrome adapter works with monitors ranging in size from 12 inches to 21 inches and supports resolutions from 640 by 480 up to 1152 by 872. The PowerBase I has a list price of \$599 and is shipping now.

The Dual Page Gray Scale Display shows 256 shades of gray at 1024 by 828 with a refresh rate of 75Hz. Intended for desktop publishing, it shows 74 dpi for true WYSIWYG. The monitor is compatible with the SE/30, the LC and LC II, the Mac II series, and Quadras. It is available at a suggested retail price of \$1049. Lapis, 510/748-1600.—T.M.

New Telecom

Mercury Systems is shipping MacIntercomm. Mercury says MacIntercomm differs from its rivals MicroPhone II and White Knight in several ways: MacIntercomm can transfer files in the background with no impact on performance; its internal virtual-memory scheme can maintain enormous screen buffers; it emulates 4-bit ANSI, the PC standard for color screens; and a smart-dial feature adjusts how MacIntercomm dials numbers based on where you are. MacIntercomm supports many terminal emulations and transfer protocols, including 9K-block Kermit.

Mercury is developing a scripting language for MacIntercomm and plans a run-time engine, as well—but no Mac interface-building tools. It lists for \$199.95. Mercury Systems is at 310/553-0881.—D.L.



BUG REPORT

M.Y.O.B. accounting software M.Y.O.B. sometimes produces rounding errors on sales tax and other operations. This problem may be the result of how the Mac performs floating-point math, which would affect other applications as well. Teleware says it is investigating a fix.

DeltaGraph Professional 2.0 QuickTime movies pasted into DeltaGraph presentations must contain video; audio-only QuickTime disappears when the file is closed. DeltaPoint is not sure when it will fix this bug.

Aldus FreeHand 3.1 Option-double-clicking on grouped objects brings up the Element Info dialog box in preview mode, but in keyline mode it bombs the Mac. Aldus is not sure of the cause.

TouchBase 2.0 Hitting ⌘-F brings up the Find dialog box, but hitting it twice in a row crashes the Mac. This bug is fixed in version 2.01, available free to registered users on request.

MACWORLD WILL SEND YOU A BUG REPORT T-SHIRT IF YOU ARE THE FIRST PERSON TO INFORM US OF A SERIOUS, REPRODUCIBLE BUG THAT WE REPORT IN THIS COLUMN. SEE HOW TO CONTACT MACWORLD.

Three Major Backup Programs Revised

Three backup products are getting major upgrades.

Dantz Development Corporation is upgrading Retrospect to version 2.0 with a simplified interface. Users can test a script before running it on a live backup, and set uninstalled tapes as the destination volume, which is useful for drives that automatically change tapes. Retrospect lists for \$249. Dantz, 510/849-0293.

Fifth Generation Systems' FastBack Plus 3.0 can back up files in Finder-readable format; can delete files based on user-defined criteria; and can keep

historical snapshots of a backed-up volume so that users can restore a drive to any previous state. FastBack Plus's list remains \$189. Fifth Generation, 504/291-7221.

Microseeds Publishing's Redux Deluxe has two major advantages over Redux: the Deluxe version can perform scheduled, unattended backups, and it can archive files, that is, keep files or versions of files after they're deleted from the source volume. Deluxe lists for \$129. Microseeds' products are now marketed by Inline Design, 203/435-4995.—D.L.

News

Instant Trees

ARCHITECTS AND real estate dealers: do your 3-D models look a little stark, your dream homes a bit unlived in? Try adding a soft touch with Tree.

Tree enables you to design trees and save them as PICT files. You can control how tall and thick the trunk is and how many branches and twigs there are, how they're shaped, and how their colors blend together. You can add deciduous-looking leaves (Tree can't generate fir trees) with different densities and coloration to reflect the time of day or season. Parameters can be saved and modified to produce lots of not-quite-identical trees. Tree lists for \$295, and is from Onyx Computing, 617/876-3876.—D.L.



THESE TREES WERE CREATED IN TREE AND COMPOSITED WITH BUILDINGS DRAWN IN AN ARCHITECTURAL MODELER.

TREND

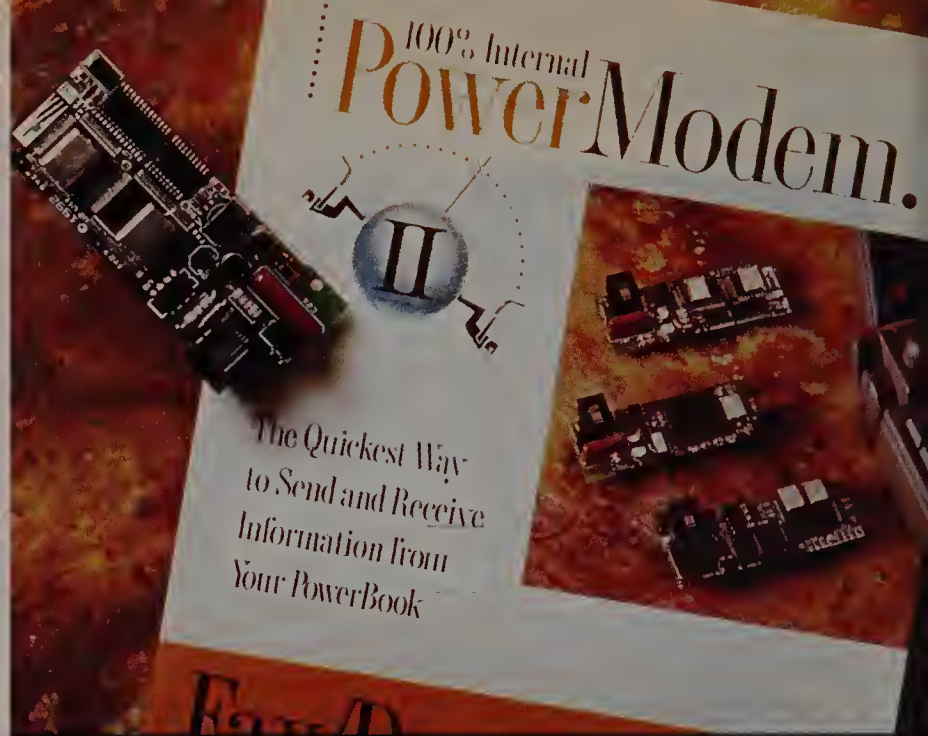
Tapping Institutional Memory

The knowledge of experts in large organizations can be pooled and preserved with Cognitive Systems' ReMind. Unlike conventional expert systems, which use chained-together IF THEN rules, ReMind uses case-based reasoning that requires no programming, deriving reality from historical cases provided by the users. Describe a new case and ReMind seeks the closest matching cases it already knows. Like real experts, ReMind may not find an adequate solution, but each new case refines ReMind's memory; and ReMind has point-and-click editors that let users teach it new relationships and concepts. Case-based reasoning promises to put artificial intelligence technology into the hands of end users without the muss and fuss of programming. ReMind is \$3000 for the development system; \$2000 for optional C libraries; and \$1000 per user run-time. Cognitive Systems, 617/742-7227.—DANIEL W. RASMUS



FAST.

PowerModem Data: 2400 Fax Send: 9600 Fax Receive: 4800 \$195



FASTER.

PowerModem II Data: 2400 Fax Send: 9600 Fax Receive: 9600 \$295



FASTER STILL.

PowerModem III Data: 9600 Fax Send: 9600 Fax Receive: 9600 \$395



FASTEST.

PowerModem IV* Data: 14.4 Fax Send: 14.4 Fax Receive: 14.4 \$495

©1992 PSI Integration, Inc. The PSI logo is a trademark of PSI Integration, Inc. All brand and product names are trademarks or registered trademarks of their respective holders.

PSI POWERMODEMS. THE FASTEST*, MOST AFFORDABLE INTERNAL FAX/DATA MODEMS FOR THE POWERBOOK.

THE PSI POWERMODEM SERIES				
	Data	Fax Send	Fax Receive	Cost
PowerModem	2400	9600	4800	\$195
PowerModem II	2400	9600	9600	\$295
PowerModem III	9600	9600	9600	\$395
PowerModem IV*	14.4	14.4	14.4	\$495

PSI PowerModems™ are the fastest internal fax and data modems for the entire Macintosh® PowerBook™ series—including the new 145, 160 and 180. With a host of features, including AppleTalk® Remote Access capability, PSI PowerModems are proven price/performance leaders. So think fast. Think PSI. For more information, call us at 800-622-1722 or 408-559-8544. **PSI POWERMODEMS. WE GIVE YOU THE WORLD.™**



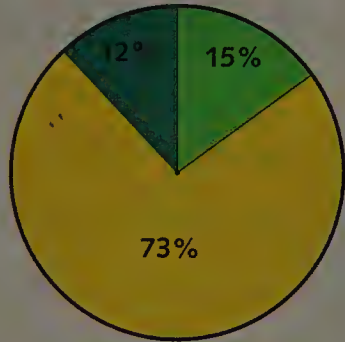
Circle 61 on reader service card

Survey: Graphics Accelerators

Do you use a graphics accelerator board?

Yes
No
Don't know

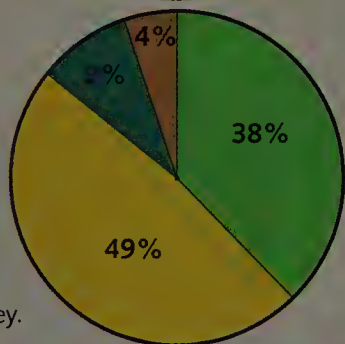
Based on 381 respondents who use DTP software.



How satisfied are you with its performance?

Very
Somewhat
Not very
Not at all

Based on 56 respondents who use DTP software with an accelerator.



Figures are derived from a 1992 Macworld mail-in subscriber News survey.

Imaging the Heart

Though created with expensive workstations, medical diagnostic images can now be displayed on Macs and other desktop computers for study. Yale University's Center for Advanced Instructional Media, in collaboration with the Cedars-Sinai Medical Center of Los Angeles, has just produced a multimedia atlas of nuclear imaging of the heart: The Myocardial Perfusion Imaging Atlas and Videodisc. The Atlas will help physicians, nuclear medicine technicians, and medical students study cases in which nuclear imaging of the heart is



A GROUP AT YALE DEVELOPED THIS TUTORIAL SYSTEM FOR MEDICAL PRACTITIONERS TO STUDY IMAGING TECHNOLOGY.

used to assess blood flow through the coronary arteries and will help them to recognize blockages that may have damaged the muscular walls of the heart. Contact the center c/o Patrick Lynch, Biomedical Communications, 333 Cedar St., New Haven, CT 06510.

—ANN GARRISON

Fast PowerBook Fax Modem

THE POWERMODEM IV from PSI Integration is a high-speed fax modem that fits inside Apple's PowerBooks. The board sends and receives both data and faxes at 14,400 bps (compared with 9600 bps for most fax machines and fax modems). The PowerModem IV includes V.23, V.32, V.32bis, V.42, V.42bis, and MNP Class 10 error-correction and compression standards.

The PowerModem IV also supports the Hayes AT command set. Lack of the complete AT command set has caused Apple's Macintosh PowerBook Internal Fax/Data Modem to have problems hanging up the phone line. Available now, the PowerModem IV lists for \$799. PSI, 408/559-8544.—T.M.

External Fax Modems

Global Village's TelePort/Bronze, TelePort/Silver, and TelePort/Gold fax modems are external devices that send and receive data at 2400 bps, 9600 bps, and 14,400 bps, respectively. All three products send and receive faxes at 9600 bps.

Available now, the Bronze lists for \$249. The Silver's list price is \$449, and the Gold's list price is \$649. The Silver and Gold were slated to ship around the end of October. Global Village, 415/390-8200.—T.M.

Taxan Ships

Flat-Square Monitor

Taxan America has begun shipping the MultiVision 875 Plus, a 17-inch flat-square monitor that can show resolutions up to 1280 by 1024 at 70Hz. The multisynch monitor is compatible with Macs and DOS machines. It has a silica-coated screen for glare reduction, and dynamic beam focus to prevent distortion in the corners of the display.

Available now, the MultiVision 875 Plus lists for \$1899. It comes with a BNC cable and adapters for Macs and DOS machines. Taxan America, 408/748-0900.—T.M.



THE MULTIVISION 875 PLUS 17-INCH FLAT-SQUARE MONITOR SHOWS UP TO 1280 BY 1024 PIXELS.

LUIS DELGADO

News

New Add-Ons for Microsoft Word

Alki Software is shipping add-ons for Microsoft Word 5.0. MasterWord (\$99.95) adds a user-modifiable tool bar to Word and provides several new features including a print-envelope command, automatic paragraph-bulleted, and a simplified table interface. MasterWord also comes with much-expanded help files and several desk accessories including a calculator and a text-searching tool. Other Alki add-ons include a \$99.95 spelling dictionary, a hyphenation file, and a thesaurus available for 14 European languages; a greatly expanded English-language thesaurus and dictionary are \$79.95 each. Alki Software, 206/286-2600.—D.L.

DESKTOP LIBRARIAN

Books on Shareware

This month we pore over two books that help provide access to large quantities of software.

- *The Mac Shareware 500*, by Ruffin Prevost and Rob Terrell (1992, \$39.95). This massive book gives brief reviews of 500 shareware and freeware packages. It thoughtfully starts out with a chapter on how shareware and related concepts work, another on how to access shareware over online services, and a third on how to deal with problem programs. The reviews make up the bulk of the book, however, covering everything from business applications to games. Includes an index and a program index, three disks containing some classic shareware, an America Online membership disk, and a certificate for five free hours of connect time on America Online. Ventana Press, 919/942-0220.

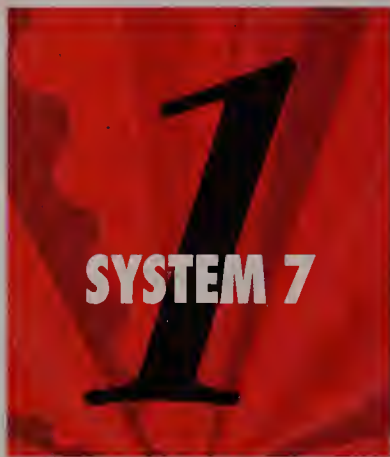
- *The Mac Shareware Emporium*, by Bernard J. David and Maria L. Langer (1992, \$34.95). This even-larger volume offers reviews of more than 450 shareware programs. The first chapter gives an overview of what shareware is and of its pros and cons. The second chapter instructs the reader on how to get shareware. Most of the rest of the book is dedicated to reviews, organized by type of software, that include such information as the size of a program and what hardware and software is necessary to run it. Includes an index, a list of the authors' favorite shareware, and a separate section on shareware sources. Also comes with two disks of shareware. Brady Publishing, 800/428-5331.—T.M.



THE MAC SHAREWARE 500 AND THE MAC SHAREWARE EMPORIUM BOTH INCLUDE—SHAREWARE.

BERNARD MARQUE

7 REASONS WHY YOU NEED A NEW WORD PROCESSOR.



Because you're ready to see what System 7 can do.

Apple calls System 7 the biggest improvement in Macintosh since Macintosh. And WordPerfect® is now System 7 savvy.

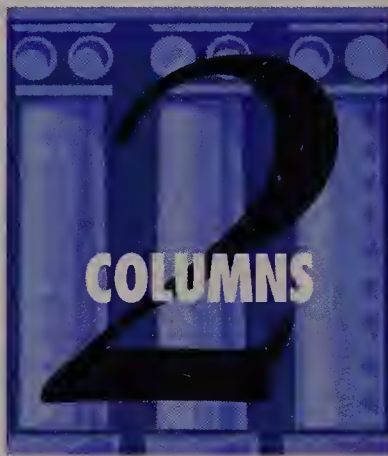
So now (among lots of other new things), WordPerfect will automatically keep track of changes that you (or someone else) might make to imported files (charts, graphics, whatever), and update your WP documents accordingly.

Now, a change made in one place can be a change made in many places. Apple calls it "Publish and Subscribe," and it works

between programs on your hard drive, as well as among people on

your network. Publish and Subscribe assures you that your documents will always reflect the latest information available.

And it's just one of the new System 7 tricks that WordPerfect 2.1 has mastered.

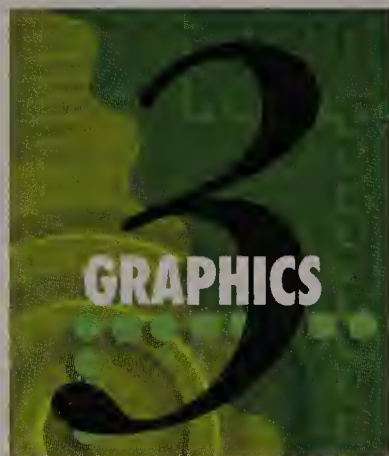


Because WordPerfect does columns better than the Greeks.

Pick a starting point, click on the ruler, and see your text in two columns. Or in three columns. Or five columns. With vertical rules beside or between them, if you like. Drag a guide on the ruler and try *unequal* columns. Highlight text in a box that jumps across columns.

Go crazy with the design, or stick with the tried-and-true.

The point is, WordPerfect gives you formatting options that other word processors don't. And exploring them couldn't be much easier.



Because you'd use more graphics if using them were easy.

WordPerfect not only gives you full control over the placement of graphics in your text, it also gives you a color drawing program for modifying imported artwork (or starting over from scratch) without ever leaving the program.

You can print graphics under your text (as "water-

marks") or on top (as overlays).

You can use the drawing tools to rotate text to any angle that strikes your fancy (something many page layout programs still can't do).

And WordPerfect gives you 36 border styles and 64 fill patterns — which you can use in any of 256 colors — for highlighting graphics, paragraphs, columns, pages, even blocks of text.



Because a movie is worth who-knows-how-many words.

If a picture is worth a thousand

words, what's a movie

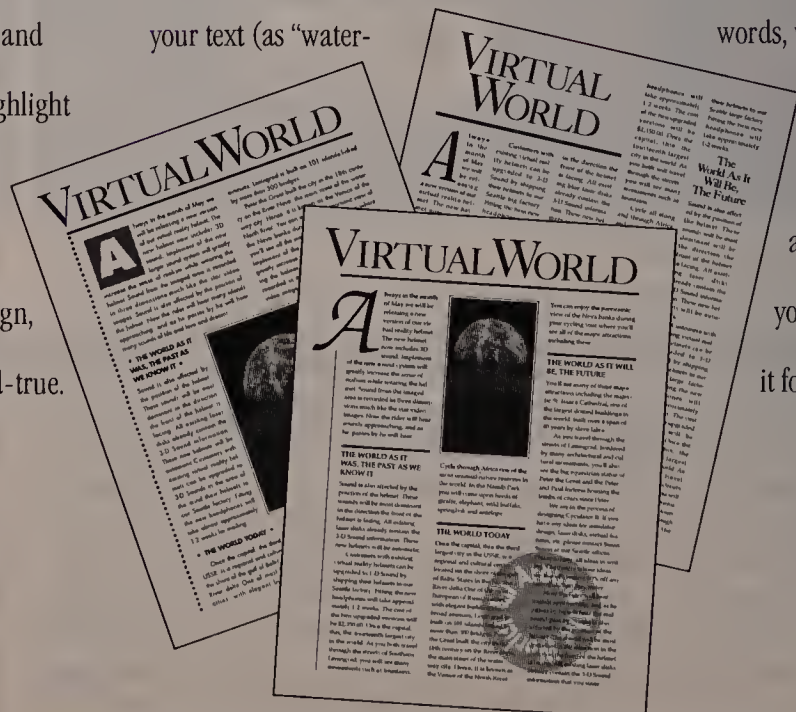
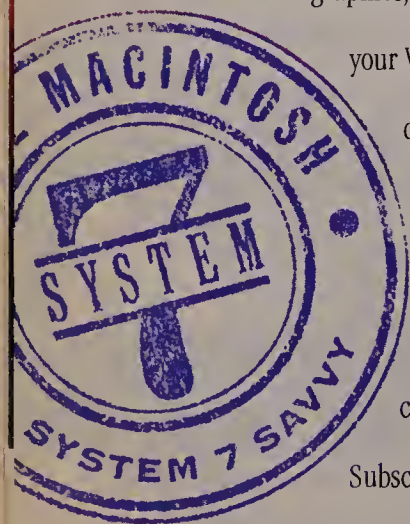
worth? With

WordPerfect

and QuickTime

you can calculate

it for yourself.



Apple's QuickTime is a new technology that lets you work with digital video and sound as easily as you now work with text and graphics files.

Imagine being able to place (and size) a QuickTime movie anywhere in a document. You could add urgency to a memo with a few well-chosen words delivered "live." Or help an audience visualize your latest brainstorm with a 3-D simulation they can start, stop and replay.

We have a feeling that words can't begin to describe all the ways you'll think of to use it.



Because you get tired of repeating yourself, yourself, yourself.

Perhaps because they've heard it's a powerful programming

language, WordPerfect's macro editor intimidates some people at first. It shouldn't.

It's no more complicated than a tape recorder. Click "record" and it memorizes your keystrokes. Click "play" and it repeats them.

With no more knowledge than that, you can create a WordPerfect macro. And can spare yourself the effort of formatting M-E-M-O-R-A-N-D-U-M, T-o-; F-r-o-m: (and so on) across the top of the page every time you want to fire off a memo, for example.

But simple as recording your own macros can be, we also ship a number of them with the program. For formatting addresses to print on envelopes. Placing "drop caps" at the start of paragraphs. And other jobs you'd rather not do twice.



Because some people work on DOS computers.

You want the word processor that's right for you. If your choice happens also to be the choice of millions of others — with other computers — so much the better.

That's why WordPerfect is such a good choice. Lots of DOS users use WordPerfect. As well as UNIX, VMS and other users. If you ever find your Mac on a network with other computers,

WordPerfect's compatibility can save you a lot of aggravation. Not to mention a lot of reformatting.



Because even if you never call us, it's nice to know we're here.

Like any good Mac program, WordPerfect 2.1 is easy to use. But unlike many Mac programs, you're not on your own with it. You get

toll-free help from one of the largest support staffs in the industry.

For more reasons to try WordPerfect, call for our free video. 1-800-526-7820



WordPerfect®

WordPerfect is a registered trademark of WordPerfect Corporation within the United States and other countries. All other brands and product names are trademarks or registered trademarks of their respective companies. Copyright © 1992 WordPerfect Corporation.



The PowerBook Duo system is designed to work on the desktop, when inserted into the Duo Dock (top); as a stand-alone portable (left); and when connected to the Duo MiniDock (right).

Apple's Dynamic Duo

They're laptops. They're desktop Macs. They're both!

Back when the first battery-powered portable personal computer appeared—which was nearly ten years ago—people began predicting the death of the desktop machine. The demise of the desktop computer hasn't happened yet, and for some good reasons:

most people want their desktop machines to have large, detachable keyboards; color monitors; expansion slots; and ports for add-ons like hard drives, scanners, and CD ROM drives. Desktop computers welcome new hardware, but with most portables, if it isn't inside, it doesn't exist.

It is certainly true that Apple's standard PowerBooks—the 145, 160, and 180—are less introverted than most notebook computers, offering ports that can connect to a mouse and keyboard, SCSI devices, and LocalTalk networks. The PowerBook 160 and PowerBook 180 can even run external color monitors. But who wants to disconnect and reconnect several cables and fuss with control panel settings every time you leave or return to the office?

The solution for most portable-computer owners has been to also buy a desktop machine—if their budgets or corporate purchasing policies allow that kind of investment. Buying two machines is great for the computer industry, but it complicates life by forcing you to manage two

hard drives and to copy files between machines. And it's expensive.

It was with these issues in mind that Apple designed the Macintosh PowerBook Duo system. The nomadic half of a Duo system is a 4.2-pound computer, known as the PowerBook Duo, that's even smaller and more mobile than a standard PowerBook. Two PowerBook Duo models are available; both are fast machines with copious hard drives, good-to-very-good displays, no built-in floppy drives, and practically no built-in ports. The PowerBook Duo 210 retails for \$2249; the faster 230 lists for \$2609. (All the prices cited here are preliminary.)

The deskbound half of the Duo system is a \$1079 *docking station* called the Macintosh Duo Dock. The Duo Dock offers space for two NuBus expansion boards, a second hard drive, extra video memory, and the ports that other Macs provide. On its front panel is a large slot into which you insert a closed PowerBook Duo—a task akin to inserting a tape into a videocassette recorder. United, the two form a fast desktop Mac that is more expandable than a Mac IIsi.

There is more to the Duo system than just a PowerBook Duo and the Duo Dock. Two smaller docking stations, the Macintosh Duo MiniDock and the Macintosh Duo Floppy Adapter, are designed to add ports without sacrificing portability.

by Jim Heid

There is also an external floppy drive, a selection of adapters and battery chargers, and an optional built-in modem. A variety of third-party portable docking stations are also in development that will provide Ethernet network ports, video-expansion features, and even a cellular phone connection. There will certainly be a strong market for carrying cases—if not backpacks.

Numerous docking stations are available for DOS notebook computers, but none embodies the engineering finesse behind the Duo system. Nonetheless, there are some compromises in the PowerBook Duos and in the Duo Dock docking station. Although Apple describes the Duo system as providing the best of both worlds (the system's development code name was BOB W), some people will still be better served by stand-alone Macs and PowerBooks.

The Petite PowerBooks

A STANDARD POWERBOOK LOOKS portly alongside a PowerBook Duo. A standard PowerBook weighs 6.8 pounds; a PowerBook Duo weighs 4.2. A standard PowerBook is 2.25 inches high, 11.25

inches wide, and 9.3 inches deep; a PowerBook Duo is 1.4 inches high, 10.9 inches wide, and 8.5 inches deep. A Duo is also less angular, with rounded front edges that should make it more comfortable to carry. Rubber bumpers along the sides of the machine help cushion it against bumps.

But there is nothing diminutive about a PowerBook Duo's power. In the PowerBook Duo 210, a 25MHz 68030 presides over 4MB of RAM and an 80MB hard drive. The PowerBook Duo 230 uses a 33MHz 68030 and is available with an 80MB or a 120MB hard drive. Neither model has room for a 68882 math coprocessor chip, but one is available as an option for the Duo Dock.

Each Duo model uses a supertwist, liquid crystal display (LCD) screen capable of showing up to 16 levels of gray, as in the PowerBook 160. The 640-by-400-pixel resolution is identical to that of the standard PowerBooks, but the screens themselves are physically smaller, measuring 9.1 inches diagonally versus 10 inches on a PowerBook 170. A tiny (and tinny-sounding) speaker sits to the left of the display. To the right is a set of brightness and contrast buttons. The top cover, which is also the screen, is remarkably slim—just 10.5 millimeters thick, versus about 19mm on a PowerBook 170.

The Duo displays are not as brilliant

as the active matrix displays used in the PowerBook 170 and 180, although they are brighter than the PowerBook 100 and 140/145 displays. Apple says the main reason it did not use active matrix displays in the Duo models is that they would have required a wider screen lid. *Macworld* writers and editors who previewed the machines had mixed opinions on the display. Some liked it, but others felt that the Duo's gray-scale images looked muddy and said they'd prefer to use the computer in black-and-white mode when possible.

Honey, I Shrunk the Input Devices

APPLE'S ERGONOMICS CLAIMS NOTWITHSTANDING, notebook computers aren't known for being finger friendly. One reason is that they're often used in places where you can't control desk and chair height; another is that their input devices are smaller than those of a desktop machine. The Duo's trackball and keyboard are even smaller than a standard PowerBook's. These are not computers for the ham-handed.

The Duo's marble-size trackball measures just 19mm in diameter; standard PowerBooks have a 31mm trackball. Pointer movement is surprisingly smooth, though, thanks to three tiny synthetic ruby bearings that support the trackball. The trackball's tininess keeps it from protruding above the Duo's palm rest; the



How Fast Are the PowerBook Duos?

Processor Tasks

Four tests indicate processor performance: performing a search and replace in Microsoft Word, previewing and magnifying in Aldus FreeHand, and sorting in Claris FileMaker Pro.

Drive Access Tasks

Two tests represent overall performance for tasks involving intensive access to the hard drive: opening an Adobe Photoshop file and duplicating a 3.2MB file.

Display Tasks

Two scrolling tests—in Microsoft Excel and Word—show processor performance during screen redrawing.

Math Tasks

A test in Excel—consisting of complex arithmetic functions—indicates math coprocessor performance. In computers without a coprocessor, tasks were performed by the main processor.

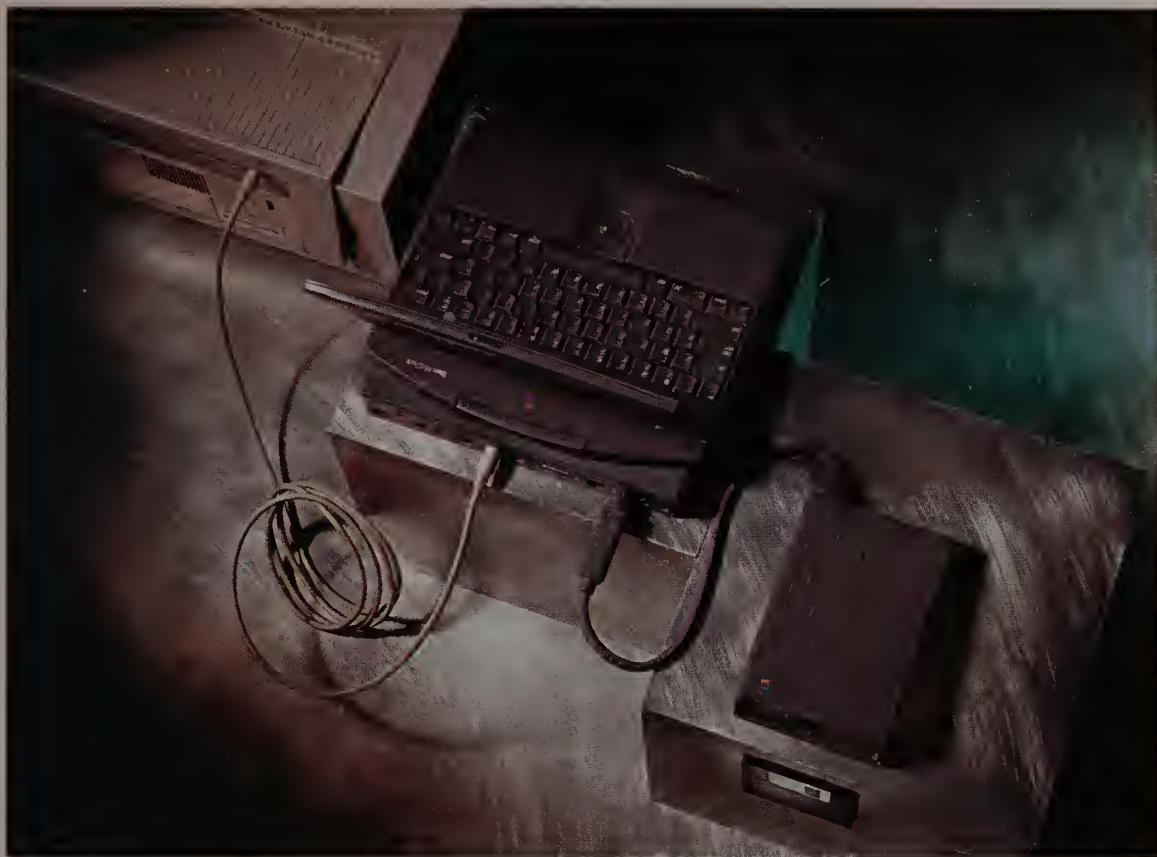
Quadra 950	18.1	21.0	44.2	19.7
PowerBook Duo 230	37.9	34.9	64.4*	198.0
Macintosh Ilci	53.2	36.5	112.7	43.5
PowerBook Duo 210	51.5	42.0	101.8*	265.6

Times are in seconds. Shorter bars are better.

*These results reflect the math coprocessor present in the Duo Dock. When the PowerBook Duos are used separately from the Duo Dock, they do not have a math coprocessor, and the tests took 198 seconds for the Duo 230 and 265.6 seconds for the Duo 210 to complete.

If you're wondering how the PowerBook Duos compare in performance to desktop Macs, the answer is that the 33MHz Duo 230 is a bit faster than a Ilci, while the 25MHz Duo 210 is a bit slower on the series of common

tasks that we tested. The Quadra 950 and Macintosh Ilci (with cache card) were tested with 8MB of RAM, internal video, and System 7.0.1 with Tune-Up. Both Duos were running System 7.1.6 and 4MB of RAM.



Getting Connected The PowerBook Duo 210, center, connects to the outside world via the Duo MiniDock, a small, half-moon-shaped extension board that connects to the back of the Duo. Here, the MiniDock connects to a LaserWriter, left, and an external SuperDrive drive, right.

two trackball buttons are also recessed. This makes the whole affair less obtrusive and allows for a thinner lid, but some people may find it makes pointing and clicking more cumbersome, especially for those with large hands.

The Duo keyboard layout is identical to that of the larger PowerBooks, although the keyboard itself is different. The spacing between keys is slightly tighter, making the keyboard a bit more cramped. Also, the key travel—the distance a key moves down when pressed—is shorter: about 2.5mm versus 3mm. Half a millimeter isn't much, but to me, it makes the keyboard feel a bit more responsive. One small but welcome plus for those with large fingers: a light within the caps lock key illuminates when active.

Above the keyboard is a small power-on key—no need to reach behind the computer, open a door, and grope for the power switch as you had to with the 140 and 170. To the left of the power-on key is a built-in microphone. The PowerBook Duo does not have a sound-input jack.

Opinions varied among *Macworld* editors and writers, but most liked the keyboard and found the recessed trackball particularly appealing. Still, at least two of us hated the trackball (both of us already have sore hands from computer use), showing that tastes in input devices do vary. Try to spend some time with a machine before buying. It's especially important to come to terms with a Duo's input devices, since you can't attach a mouse or keyboard unless you also attach one of the docking stations.

Looking Inside

THE DUO KEYBOARD AND ITS LOGIC board are surrounded by a magnesium frame that adds rigidity to the case and helps align the computer at docking time (see "Interior Strength"). Part of the frame also touches the top of the PowerBook's 68030 processor, where it draws off heat and cools the processor.

Thanks to a new memory design, the PowerBook Duo 210 and 230 can house up to 24MB of RAM, versus the 8MB limit of the PowerBooks 140, 145, and 170, or the 14MB limit of the PowerBooks 160 and 180. The Duo uses 70-nanosecond dynamic RAM (DRAM) chips, not the pseudostatic RAM chips used in a standard PowerBook. As a result, memory expansion boards should be less expensive, and come in a wider range of capacities. Best of all, due to changes in design, you can install such boards yourself without voiding the warranty (Apple still recommends technician installation). Removing three screws from the bottom of the Duo's case lets you remove the keyboard to expose the memory-expansion slot.

A conventional DRAM chip requires separate refresh circuitry that essentially jogs the chip's memory periodically to keep it from losing its contents. The Duos' DRAM chips use a unique self-refreshing technique that eliminates the need for separate refresh circuitry.

Besides a memory-expansion board, there's also room inside a PowerBook Duo for a modem. Apple's optional Macintosh PowerBook Express Modem, which will be available in January, supports 9600-bps V.32 operation and can send and receive faxes. The modem is unique in that it is partially implemented in software—the Duo's 68030 does some of the work that would normally be performed by dedicated chips. This keeps the modem's size down—it measures just 2.38 by 2.25 inches—and will allow Apple to add new communications features by simply releasing new software. On the downside, it means that the Duo's processor must work harder during communications sessions. A PowerBook Duo may be more sluggish than other Macs when you switch to another program while transferring a file or sending or receiving a fax in the background. Another drawback is memory use: when you turn on the modem (using an included control panel), you lose roughly 300K of RAM.

Apple says the lack of real estate inside a PowerBook Duo means that you're not likely to see a large selection of third-party modems for the Duo line. Global Village Communication, however, is working on porting its GlobalFax software to the Duo.

As for system software, the PowerBook Duos require and include System 7.1. Both machines include the new PowerBook control panel, which provides more-straightforward control over power-management features than did the old Portable (see *Lab Notes* in this issue), and the new PowerBook Display control panel, which saves battery power by turning backlighting off after a specified period of inactivity. Also included is the new Auto Remounter control panel, which lets the system automatically remount any shared hard drives that were connected during the previous docking. For example, say you are connected to a file server at the office and then you take the PowerBook Duo on the road. When you return to the office and reconnect to the network, the Auto Remounter control panel automatically remounts the file server—no need to go through the Chooser to reconnect manually.

The Power to Be Powered

INSTEAD OF THE NICKEL-CADMIUM batteries used in the standard PowerBooks, the Duos use a nickel-metal-hydride battery that provides more power in a smaller package and can charge more quickly—in about an hour and a half, versus four to five hours for a PowerBook 170's battery. Nickel-metal-hydride batteries are also considered less toxic to the

environment; cadmium has been classified as a toxic material by the EPA, but to date, metal hydride has not.

Unlike all standard PowerBooks except the 100, a PowerBook Duo's battery bay is on the front edge of the machine, not on the side. This location makes it possible to change and recharge batteries while the PowerBook Duo is in the Duo Dock.

Apple has refined its power-management technology (trademarked as the EverWatch battery saver) to give the Duos some new tricks. You can change the battery when the PowerBook Duo is asleep without plugging in the power adapter; try this on a standard PowerBook, and you shut down the computer, sending any unsaved work into oblivion. Also, when you lower the Duo screen to its closed position, the system automatically goes to sleep.

Unfortunately, Apple did not fix a power-management-related problem that can cause data errors between the computer and musical instruments connected

via MIDI. Because the power-management software periodically interrupts the CPU, errors can occur when you're transferring large amounts of MIDI data (specifically, when you're doing large system-exclusive dumps of data like sound samples—the system should work fine for general sequencing). For all of Apple's interest in multimedia, unfortunately, the company has yet to produce the perfect musician's computer.

Prepare for Docking

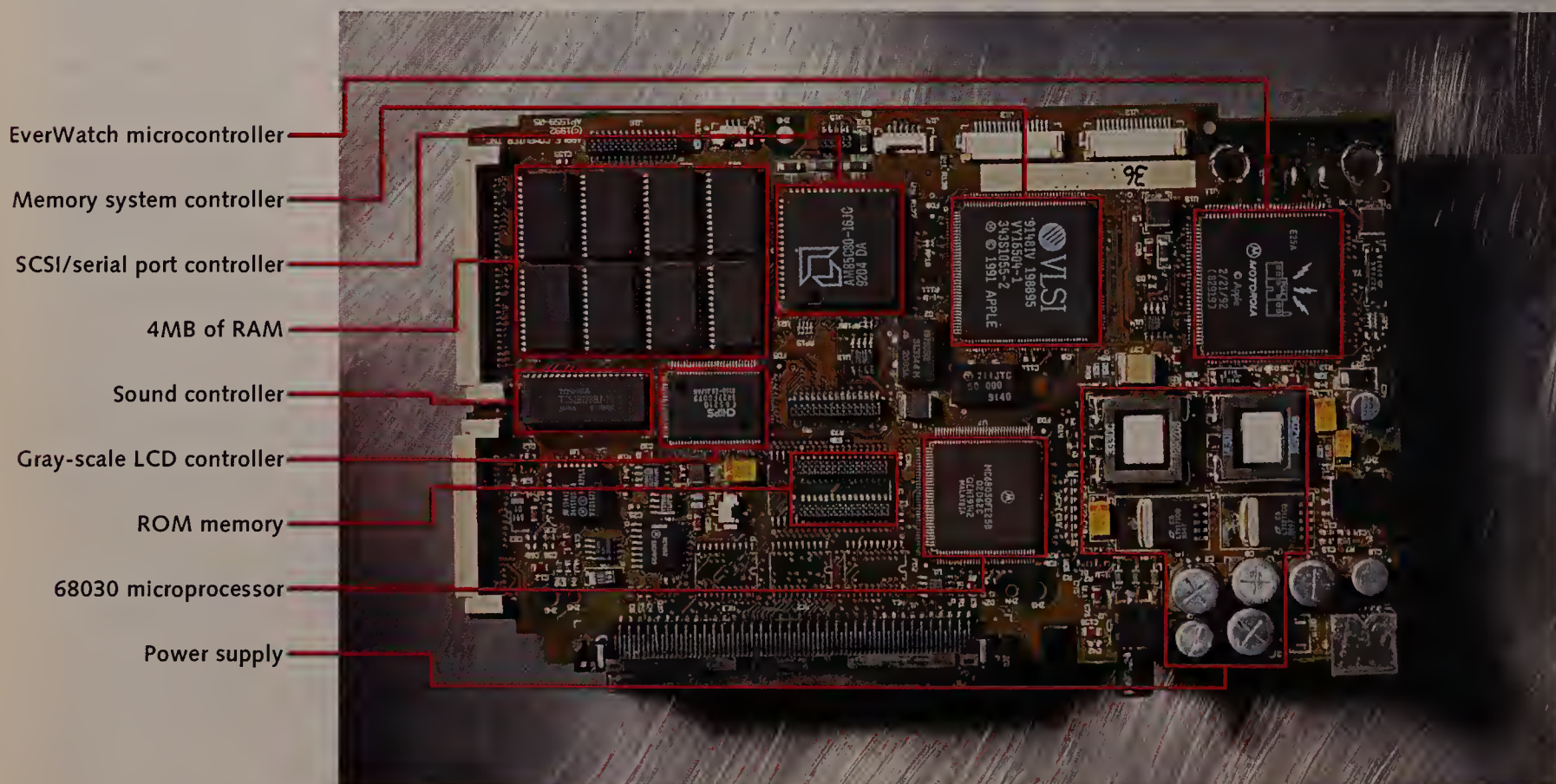
BEFORE DOCKING A POWERBOOK DUO, you must invoke its Shut Down command; if you try to dock a sleeping Duo, the dock ejects it and a dialog box appears on the Duo's screen. (Of course, you have to open the lid to read it.) After shutting down, you open the PowerBook Duo's rear door, exposing a 152-pin, palladium-plated docking expansion connector (see "Comparing Ports"). The docking expansion connector is a 32-bit Processor Direct Slot that allows access to every signal line on the 68030 processor.

After opening the docking expansion door, slide the Duo into the Duo Dock's slot and push gently. As the PowerBook approaches the rear of the slot, two steel alignment pins in the dock meet corre-

sponding holes in the PowerBook's internal magnesium frame, ensuring that the expansion connector will mate accurately with its counterpart in the Duo Dock. When the PowerBook Duo is 5mm away from its destination, it trips an optical sensor, activating two motorized hooks that grab the PowerBook's magnesium frame and draw the computer home with a satisfying thunk. All this happens in about the time it takes to insert a floppy disk in a disk drive.

Is it reliable? Apple says yes, adding that the steel alignment pins and the magnesium frame are manufactured to tight tolerances that ensure the connectors always mate accurately. The Duo Dock's motor mechanism does not require periodic alignment or adjustment, and Apple says the docking expansion connectors are designed to endure 5000 connect/disconnect cycles. It is an impressive piece of engineering.

Once the PowerBook Duo is docked in the Duo Dock, it has two serial ports, an Apple Desktop Bus (ADB) port, a SCSI port, an external monitor port, a larger speaker, and two NuBus slots. The monitor port uses the Duo's video circuitry to display up to 256 colors on monitors as large as 16 inches. The Duo Dock con-



The Duo's Logic Board The Duo's logic board displays a high degree of integration, packing a lot of circuitry into a compact space. Custom-designed chips from Apple such as the EverWatch microcontroller, which manages the power-saving capabilities of the Duo, provide many of the sophisticated features that make the whole Duo system possible.

How the Duo System Fits Together

The PowerBook Duo system allows you to mix and match components to create a setup that works for your needs. Below is an illustration of all the components and how they fit together. At bottom is a list of four of the possible configurations with the required components and their prices.

Duo Dock
Provides 16-bit color video support, two internal NuBus slots, a bay for an internal 3.5-inch SCSI hard drive, an internal 1.4MB Apple SuperDrive, as well as connections for SCSI, an ADB port, a video port, two serial ports, and sound-in and sound-out ports.

HDI-20 External 1.4MB Floppy Disk Drive
This floppy port plugs directly into the Duo Floppy Adapter or the Duo MiniDock.

HDI-30 SCSI System Cable
SCSI cable for connection to SCSI peripherals.

HDI-30 SCSI Disk Adapter
Allows you to connect a Duo as an external hard drive on another Macintosh system.

Duo Floppy Adapter
Allows you to connect the external HDI-20 floppy disk drive to the Duo and includes an ADB port for a mouse and a security slot for securing the Duo to your desk.

Duo MiniDock
Provides 8-bit color video support, as well as an ADB port, two serial ports, connections for SCSI and floppy drives, and sound-in and sound-out ports.

PowerBook Duo 210
Apple's lightest and slimmest PowerBook weighs 4.2 pounds, and measures 10.9 by 8.5 inches. The Duo is designed to provide a wide range of configurations for those who want both portability and expandability.

Battery Cover
You can open this door and remove the battery without first ejecting the Duo from the Duo Dock.

PowerBook Duo Rechargeable Battery
This nickel-metal-hydrate battery provides up to 4.5 hours of usage and can be charged in about 2 hours.

Duo AC Adapter
Powers the Duo. Allows you to recharge the battery without removing it.

PowerBook Duo Battery Recharger
You can attach this recharger to the AC adapter and charge an extra battery while you use the Duo.

Four Duo Configurations*

MAXIMUM PORTABILITY



PowerBook Duo 210 4/80	\$2249
A/C adapter	\$65
extra battery	\$69
battery recharger	\$119
Total	\$2502

PORTABILITY AND COMFORT



PowerBook Duo 210 4/80	\$2249
floppy adapter	\$135
floppy disk drive	\$199
mouse	\$99
A/C adapter	\$65
extra battery	\$69
battery recharger	\$119
Total	\$2935

ENTRY-LEVEL DESKTOP



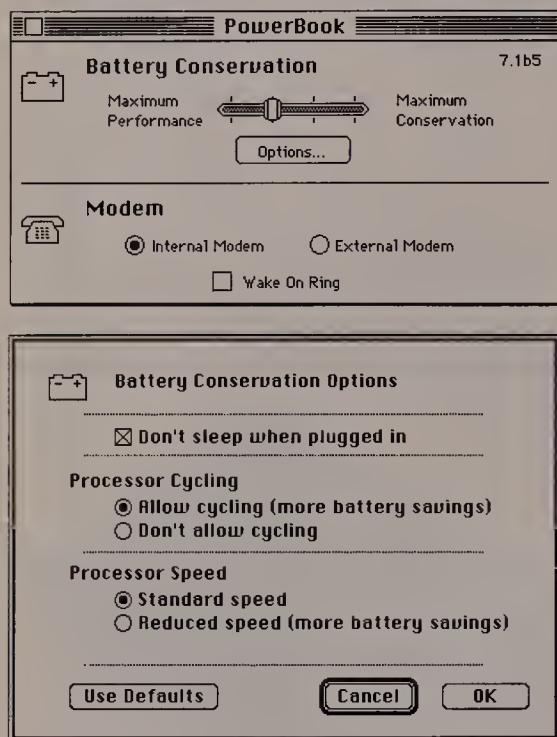
PowerBook Duo 210 4/80	\$2249
Duo MiniDock	\$589
floppy disk drive	\$199
Macintosh Color Display	\$599
extended keyboard	\$229
mouse	\$99
A/C adapter	\$65
extra battery	\$69
battery recharger	\$119
Total	\$4217

FULL DESKTOP SYSTEM



PowerBook Duo 210 4/80	\$2249
Duo Dock	\$1079
Macintosh Color Display	\$599
extended keyboard	\$229
mouse	\$99
A/C adapter	\$65
extra battery	\$69
battery recharger	\$119
Total	\$4508

* Prices listed are for the PowerBook Duo 210; configurations with the PowerBook Duo 230 will be \$360 more.



PowerBook Control The new PowerBook control panel, included with the Duo models as well as the PowerBook 145, 160, and 180, provides more-straightforward control over the computer's power-management features than did the old Portable control panel. A single slider (top) now controls hard drive and system sleep times; the old control panel used separate sliders for each. Clicking on the Options button opens the Battery Conservation Options dialog box (bottom). The Processor Cycling option turns off the PowerBook's central processor when it isn't being used; the Processor Speed option lets you slow the processor's speed to 16MHz for additional battery savings.

tains a socket for a video RAM expansion board (a 512K SIMM) that allows for over 32,000 colors on monitors as large as 16 inches. The dock's case can support a monitor that weighs up to 50 pounds. The Duo Dock also has room for a second hard drive (drive size is limited to 3.5-inch platters and a 1-inch-high drive) and an optional 68882 math coprocessor. When installed, the math coprocessor automatically runs at the same clock rate as the Duo you've inserted.

The Duo Dock contains a lock-and-key mechanism that lets you lock the Duo and prevent someone from walking away with it. You can also lock a vacant dock to prevent someone else from using it. The Duo Dock includes a standard ADB mouse, but does not include a keyboard.

The biggest compromise in the Duo Dock concerns the NuBus slots. In order to keep the dock's size down, Apple placed the slots underneath the dock's PowerBook bay. To access the slots, you must

remove the upper case lid, disconnect the power supply, remove two screws, and then remove and invert the Duo Dock's insides. Also, because NuBus boards lie parallel to your desktop, rather than at right angles to it as in most other Macs, you must remove the top NuBus board to access the bottom board. If you plan to swap boards extensively, these gymnastics may become bothersome.

Prepare for Departure

WHEN IT'S TIME TO GO, PUSH THE Duo Dock's Eject button. If any unsaved documents are open, you're asked if you want to save them. That accomplished, the PowerBook Duo shuts down and the dock ejects it. (You can also use the Duo Dock's key to manually eject the PowerBook should a power failure occur.)

Some docking stations have been available in the IBM PC world, but they lack the polish of the Duo system. None provide a motorized insert-and-eject mechanism, for example; instead they rely on strictly mechanical docking schemes that force you to push with some oomph to dock the computer.

But the Duo Dock's motorized mechanism does more than eliminate pushing. Because it's tied to the PowerBook's system software, the dock can inform the PowerBook that you have pushed the Eject button, giving the PowerBook a chance to ask if you want to save unsaved documents. Other notebook computers and docking stations lack this intelligence. You can, for instance, undock an MS-DOS portable even if unsaved documents are open. If you do, you lose work.

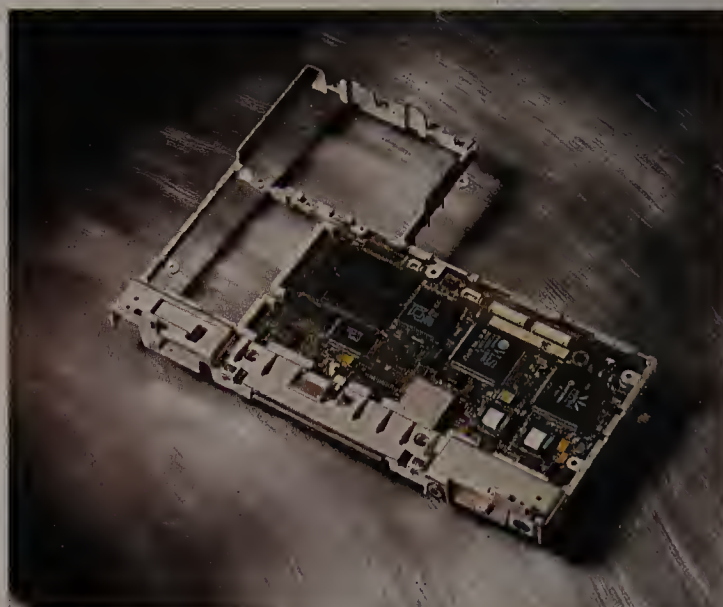
The underlying glue that ties together the PowerBook Duo and a docking station is a collection of hardware and software that Apple calls PowerLatch. In general, PowerLatch allows for easier transitions between portable and desktop computing. It works behind the scenes to keep you from losing work when you press the Duo Dock's Eject button. It also automatically configures the PowerBook for docked operation, activating the dock's math chip and video RAM ex-

pansions if they're installed, switching from LocalTalk to Ethernet if you have an Ethernet board installed, and temporarily disabling any power-saving options that you have activated.

Docking on the Road

WHEN YOU NEED PORTS ON THE ROAD, there's the 1.5-pound Duo MiniDock, which snaps onto the back of the PowerBook Duo and adds a standard complement of ports, including ones for an external floppy drive and a color monitor (see "Getting Connected"). As with the new PowerBook 160 and 180, you can specify that an external monitor be treated as an extension of the PowerBook Duo's desktop or that it mirror the contents of the PowerBook display. The latter option is handy for presentations. Also like the PowerBook 160 and 180, the PowerBook Duo-MiniDock combination supports the SCSI disk mode that debuted in the PowerBook 100—you can connect the MiniDock to a desktop Mac and then use the PowerBook Duo's hard drive as you'd use any SCSI drive.

If you need only an external floppy drive, there's the Duo Floppy Adapter, which also provides an ADB port for a mouse and keyboard. PowerLatch technology also streamlines connections to the portable docking stations. For example, if you connect either dock to a sleeping PowerBook Duo, you can wake up the computer and immediately use an exter-



Interior Strength Both PowerBooks have a unique magnesium frame, shown here, that provides enough rigidity to the case to ensure that the computer and docking station align properly during docking. One part of the frame extends out over the logic board, covering the 68030 CPU. This extension functions as a heat sink, drawing off heat and dissipating it.

Duo MiniDock From left to right: modem, security cable hole, sound-in and -out, SCSI connector, two serial ports, DB-15 video connector, ADB, floppy port, power, on/off.

PowerBook Duo 230

From left to right: modem, rear foot in up position, reset button, door covering 152-pin expansion connector, power plug, rear foot, LocalTalk port.

Duo Dock Top from left to right: modem, sound-in and -out, SCSI connectors, a plug for a future upgrade, two serial ports, DB-15 video connector, ADB, on/off. Bottom from left to right: security cable hole, power plug, monitor power passthrough, two NuBus slots.



Comparing Ports Stacked up here in order are the Duo MiniDock (top), PowerBook Duo 230, and the Duo Dock. As you move from top to bottom of this photo, you increase your possible connections to the outside world as well as your expansion options.

nal floppy drive—you don't have to waste battery power by restarting.

Interestingly, the MiniDock and Duo Floppy Adapter were developed and are manufactured for Apple by SuperMac. It's the first joint-development relationship of its kind between Apple and a U.S.-based hardware manufacturer. (Apple has similar relationships with Sony, Sharp, and Toshiba.)

A MiniDock is in many ways a small multifunction expansion board. Several other hardware developers are working on portable docking stations of their own. E-Machines is developing a presentation-oriented station that will provide several types of video-out connectors. Dayna is working on a station that will provide Ethernet and SCSI ports. One vendor is working on a cellular telephone dock that will act as a conventional cellular phone when not docked, and as a cellular modem when docked.

Is a Duo for You?

WITH THE ARRIVAL OF THE DUO SYSTEM, new PowerBooks, and the Macintosh IIfx (see "The Macintosh IIfx" in this issue), Apple now provides several ways to get a 25MHz or 33MHz, 68030-based Macintosh. How do you determine which route to take?

Start by immediately discounting the notion that a PowerBook Duo system will save you a lot of money compared with buying a separate desktop Mac and

PowerBook. You will save some money but not all that much, especially when you consider that in the end, after buying all the necessary equipment, you will still have just one computer.

The Duo system becomes particularly expensive if you want to have NuBus slots at the office *and* a full array of ports when you're on the road. For example, if you frequently need to connect to an external monitor to give presentations when traveling, then you need to buy a MiniDock for the road in addition to the Duo Dock you already purchased for the office. In this case, you're spending \$1079 for the Duo Dock plus \$589 for the MiniDock. Throw in another \$135 if you want a portable floppy drive to connect to the MiniDock. You don't have to buy a Duo Dock, but if you buy just the MiniDock, you forgo the NuBus slots and all the other expansion opportunities that the Duo Dock provides.

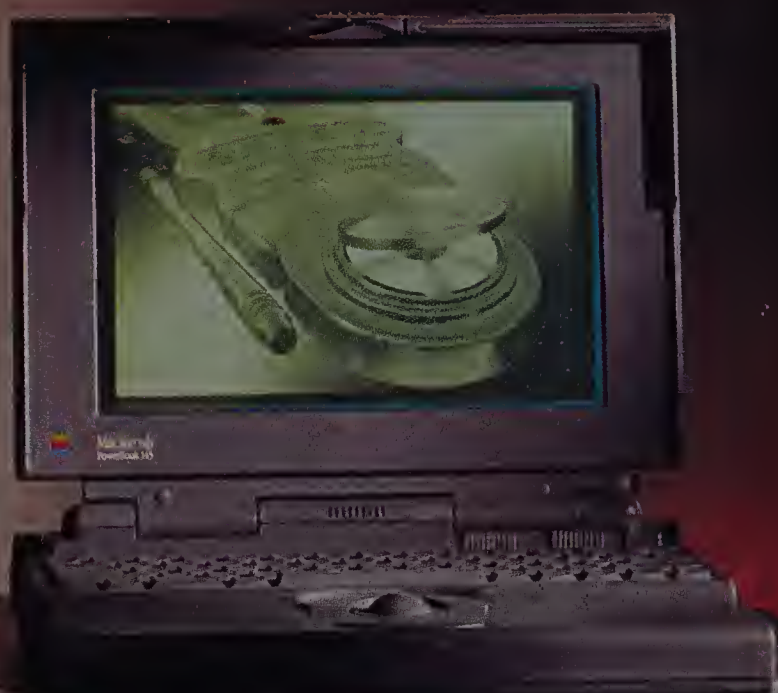
The Duo system is more about convenience than it is about saving money. The idea of working with just one hard drive whether or not you're traveling is very appealing. (Of course, it also makes a faithfully followed backup routine essential, since your sole hard drive is subject to the rigors of the road.) Apple says some cor-

porations have expressed interest in buying, say, 50 PowerBook Duos but only 20 Duo Docks that employees would share when they're at the home office. And Apple says universities are interested in populating computer centers with Duo Docks; the students can buy their own PowerBook Duos.

Well-heeled individuals who travel extensively will undoubtedly embrace the Duo system. Technology buffs will love it, too—when it comes to giving demos to friends, it's the best Macintosh yet. But in the end, it may be medium- to large-size organizations that benefit most from this chameleon of a computer.

The Macintosh PowerBook Duo system doesn't bring the demise of the desktop computer any closer, but it definitely sets new standards for notebook-and-docking-station systems—standards DOS notebook vendors are unlikely to match, at least not unless Microsoft incorporates PowerLatch-like technology into MS-DOS and Windows. With the PowerBook Duo system, Apple has again shown what kind of elegant, tightly integrated computing is possible when the hardware and the system software come from the same company. **m**

Contributing editor JIM HEID has been working with portable computers ever since the Tandy 100 appeared. He covers the PowerBook Duo system in the second edition of his book *Inside the Apple Macintosh* (Brady, 1992).



New PowerBooks

The 145, 160, and 180

Apple's latest notebooks add monitor support, gray-scale screens, and faster speeds

It looks like Apple's getting the hang of this notebook computer thing. For years, loyal Macintosh users waited patiently for a laptop—only to be soundly disappointed by that big lug, the Portable. But last fall Apple finally came out with the sleek

PowerBook line and within months sold 300,000 of the notebook computers—which were named among 1991's best new products by *Fortune*, *Time*, and *Business Week* magazines. One year later, Apple has unveiled no less than five new PowerBooks to replace the original 100, 140, and 170 models.

The new releases divide the PowerBook family into two camps: the 145, 160, and 180 are enhancements of the all-in-one notebook design, while the PowerBook Duo 210 and 230 are designed to function both as limited-capability, stand-alone notebooks and as the basis for a complete desktop system (for more on the Duo notebooks, see "Apple's Dynamic Duo," this issue).

True to Apple's notebook approach to date, the PowerBook 145, 160, and 180 models plow no new technological ground. If you're looking for innovative notebooks, you'd be better off in the DOS world, where you find such features as color screens, detachable tilt-and-swivel screens, PCMCIA support (for using plug-in, credit card-size peripherals, such as a fax modem), and a microprocessor (Intel's SL series) with built-in power-management capabilities. These three new PowerBooks are simply more mature products than their predecessors are, with enhancements and improvements based

not on cutting-edge technologies but on what customers didn't like about last year's models.

The PowerBook 145, with a 25MHz 68030 processor and price tags of \$2149 (4MB of RAM, 40MB hard drive) and \$2499 (4MB of RAM, 80MB drive), is a faster, less expensive version of the 140, which had a 16MHz 68030 chip and sold for \$2999 (4MB of RAM, 40MB hard drive) and \$3299 (4MB of RAM, 80MB hard drive). Except for a few minor details, the 145 is the same machine as the 140 (see *News*, *Macworld*, October 1992).

The PowerBooks 160 and 180 are bigger news, however. Both models correct a major omission of the previous PowerBooks by including external video support; now you can easily hook up a gray-scale or color monitor to your PowerBook (the 145 doesn't have a video-out port). The 160 and 180 also offer 4-bit screens with 16 levels of gray-scale, as opposed to the previous PowerBooks' 1-bit black-and-white-only displays. In addition, the 160 and 180 have faster processors, greater RAM and hard drive capacities, and a built-in microphone (see "PowerBooks Compared"). And while the PowerBooks' price range hasn't changed much—\$2149 for the low-end 145 to \$4229 for the 180 model with 4MB of RAM and a 120MB hard drive—you get a more powerful computer for the money.

Video Displays

PERHAPS MORE THAN ANYTHING ELSE, the original PowerBooks lost points with critics and users alike for the lack of a video-out port—a standard feature in most DOS notebooks. It seemed an inex-

by James A. Martin



The PowerBooks 160 and 180 can support color monitors up to 16 inches, such as the Apple 16" Color Displays shown here.

plicable oversight, as the PowerBooks' 32-bit QuickDraw ROM enabled them to drive color or gray-scale monitors. Even the ill-fated Mac Portable had a video-out port, for crying out loud.

Why wasn't that port included in the first PowerBooks? One theory is that Apple was afraid the video-out capability would encourage some people to buy lower-cost PowerBook models instead of more-expensive desktop Macs. A spokesperson for Apple explains that the company simply didn't think there would be enough demand for external monitor support to warrant the efforts to squeeze a video subsystem onto the already-crowded PowerBook logic boards.

Guess what. Apple was wrong. This time around—with the emergence of QuickTime last year creating an even more compelling need for some users to take a presentation on the road and show it off on a big screen—Apple couldn't afford *not* to add a video-out port.

The 160 and 180 offer built-in video support for Apple's 12-, 13-, and 14-inch RGB displays (the 12- and 13-inch monitors have been discontinued in favor of the new 14-inch Macintosh Color Display; see "The Macintosh IIfx," this issue), as well as for Apple's Macintosh Portrait Display and Macintosh 16" Color Display. The 160 and 180 ship with a standard 15-pin video cable for external-monitor hookup.

The 160 and 180 also include built-in video support for VGA and SVGA monitors, commonly used with DOS machines. To connect to those, however, you need to buy a third-party cable adapter, such as the MacVGA product from James Engineering in El Cerrito, California.

The 160 and 180 come standard with 512K of video RAM (VRAM), which enables them to display 8-bit video—256 colors or up to 16 grays—on an external monitor as large as 16 inches. Apple didn't include the option to upgrade to 1MB of VRAM, which would have enabled PowerBooks to drive 16-bit video, or 32,000 colors, on larger monitors, such as the Macintosh 21" Color Display. Again, Apple felt there wouldn't be enough demand for 1MB of VRAM in a PowerBook to warrant squeezing in an extra VRAM socket. (Could the company be wrong? It's happened before.)

Adding an external monitor to a PowerBook is simple: put the notebook to sleep, plug one end of the cable into the monitor cable and the other into the PowerBook video-out port, hit any key to awaken the computer, and you're in business. With the PowerBooks I looked at, there was a brief warming-up period before the PowerBook desktop showed up on the external monitor.

You've got two choices for using an external monitor. A new PowerBook System 7.1 software feature, Video Mirroring, precisely and proportionately mimics on the monitor what's on your PowerBook screen—an advantage for those who are running demonstrations or other presentations from a notebook. The

alternative is the familiar dual-display mode, in which the monitor and PowerBook screens are combined to create one large virtual desktop.

Gray Matters

ANOTHER LIMITATION OF THE PREVIOUS PowerBooks was the black-and-white liquid crystal display (LCD)—despite the fact that the notebooks use 32-bit QuickDraw, which enables them to drive a color LCD. (Newer Technology unveiled a \$5000 active matrix color screen for the PowerBooks at the August Macworld Expo, and Apple is working on a color active matrix screen for release in 1993.)

With the PowerBook 160 and 180 models, Apple has added LCDs capable of displaying 16 levels of gray. These two PowerBooks have different screen technologies, though: the 160 employs a backlit passive-supertwist LCD, while the 180 uses the more advanced (and more expensive) backlit active matrix LCD. Apple added a shadow-mask feature to the 180, which helps increase contrast between screen pixels. As a result of these differences, the 180's screen is visibly superior to the 160's—gray-scale images appear richer and deeper, with greater clarity and photo-realistic shadings.

Unfortunately, the supertwist screen in the 145 and 160 models still suffers from such maladies as *banding*, the visible transition between pixels, particularly noticeable in high contrasts or gradients; *crawlies*, or tiny, visible currents on the screen that resemble the kind of movement you see in an organism under a microscope; *submarining*, the momentary

submergence of the pointer when you move it quickly from point A to point B; and *ghosting*, which makes frequently displayed icons, menu bars, or other items appear to become a permanent fixture on the screen.

These problems aren't Apple's fault—they're a limitation of current screen technologies—and they aren't quite as distracting as the same problems were on the 100 and 140 models, thanks partly to improvements in screen brightness, light diffusion, and contrast controls that Apple made to the 160 and 180.

Will gray-scale really be an advantage for PowerBook users? For some people, it simply won't matter, and they should be satisfied with the PowerBook 145, which has the same black-and-white backlit supertwist LCD as the 140. But for others—those who are generating or viewing presentations, QuickTime movies, or graphics on PowerBook screens—the answer is an unqualified yes. Displaying a gray-scale or color image on a 1-bit black-and-white screen generates a posterized, or high-contrast, effect—certainly not as accurate a representation as on the new PowerBook 4-bit screens, with their 16 levels of gray.

Speed Thrills

APPLE CLAIMS THAT THE POWERBOOK 180, with its 33MHz 68030, and the 160, with the 25MHz 68030, offer speed performances that are 7 and 4.5 times faster

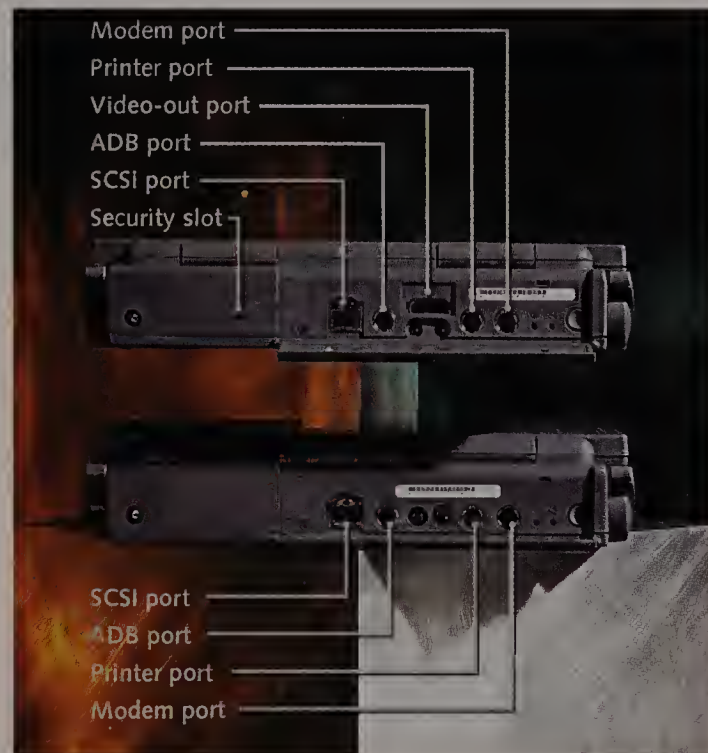
than the 8MHz 68000-based Macintosh Classic, respectively. A more accurate test, though, is to pit the new PowerBooks against MS-DOS/Windows notebooks and the Outbound Notebook System 2030S Macintosh-compatible laptop (see "How Fast Are the PowerBooks?").

If sheer unadulterated speed is your most important notebook-buying criterion, you'd be better off with Texas Instruments' TI TravelMate 4000 WinDX/25 than with any other notebook we tested. Based on the 80486 microprocessor, the TravelMate has no serious performance rival among the PowerBooks—in everything but the Word and Excel scroll tests, the TravelMate screamed by all of its competitors.

Granted, the 486 chip is equivalent to the 68040, and the current batch of PowerBooks all employ the older, and slower, 68030 CPU. Nonetheless, when you consider cost and features, it is a fair comparison—the TravelMate comes standard with 4MB of RAM (upgradable to 20MB), a 120MB hard drive (upgradable to 200MB), and a 640 by 480 VGA gray-scale screen; and the TravelMate retails for \$3299—a whopping \$1000 less than the Power-

Book 180 with the same amount of RAM and hard drive space.

The Outbound 2030S outperformed its closest PowerBook competitor, the 180, in each test category. (We evaluated both 33MHz 68030-based notebooks with 68882 floating-point units [FPUs]; the FPU is included in the 180 but is sold as a \$250 option for the Outbound system.) In addition to providing better performance, the 2030S is much easier to up-



Back panels of the PowerBooks 160 (top) and 145. (The PowerBook 180's back panel is identical to the 160's.) The 160 and 180 feature new video-out ports and security slots.



How Fast Are the PowerBooks?

Processor Tasks

Two tests indicate processor performance: recalculating a Microsoft Excel file (including simple arithmetic functions) and performing a search and replace in Microsoft Word.

Drive Access Tasks

Two tests represent overall performance for tasks involving intensive access to the hard drive: opening an 890K Excel file and a 212K Word file.

Display Tasks

Two scrolling tests—in Excel and Word—show processor performance during screen redrawing.

Math Tasks

A test in Excel—consisting of complex arithmetic functions—indicates math coprocessor performance. In computers without a coprocessor, tasks were performed by the main processor.

	Processor Tasks	Drive Access Tasks	Display Tasks	Math Tasks
TravelMate 4000 WinDX*	11.8	16.4	84.8	20.4
Outbound 2030S	22.4	26.6	51.8	37.5
Compaq LTE Lite/25*	21.4	25.0	99.8	38.9
PowerBook 180	24.3	27.9	73.6	42.5
PowerBook Duo 230**	24.5	23.9	64.4	198.0
PowerBook 170	28.4	32.5	91.4	50.8
Macintosh IIfx	25.6	35.0	112.7	43.5
PowerBooks 145/160	32.4	32.6	91.8	316.0
PowerBook Duo 210**	33.1	31.9	101.8	265.6
PowerBook 140	45.7	44.6	122.5	546.3

Times are in seconds. Shorter bars are better.

* DOS notebooks tested with MS-DOS 5.0 and Windows 3.1. ** Tests conducted without FPU, which is built into the Duo Dock.

The new PowerBooks 145 and 160 are noticeably faster than the older 140; the new 180 is faster than the older 170. In some cases all three new PowerBooks outperform a desktop Mac IIfx. Two comparable DOS/Windows laptops and Outbound's Macintosh-compatible beat all the Power-

Books. The PowerBooks 140, 145, and 160 do not have math coprocessors. For all tests we used Microsoft Word and Excel because they have comparable versions for the Windows and Macintosh systems.

grade than a PowerBook—that should give pause to any potential notebook buyer (see *Reviews*, September 1992, for more on the 2030S).

Despite the speed advantages of the TravelMate and Outbound, one simple fact will probably keep many readers of this magazine from seriously considering these notebooks—neither one is an Apple Macintosh. With that in mind, suffice it to say that the new PowerBooks are certainly an improvement over their predecessors—for example, the new low-end model, the 145, has the same 25MHz 68030 CPU as the 170, the former high-end PowerBook. And the new PowerBooks perform favorably compared with the 25MHz 68030-based desktop Mac IIci (with 68882 FPU), which in most cases is more than enough raw power for those on-the-road computing tasks.

Memory Gains

YOU CAN STOP FRETTING OVER THE PowerBook’s ridiculously low RAM and hard drive capacities, as Apple has installed a standard 4MB of RAM in each new PowerBook. The 160 and 180 can be upgraded to a total of 14MB—the previous PowerBook limitation was a scanty 8MB. The PowerBook Duo 210 and 230 models, however, can support up to 24MB of RAM (see “PowerBooks Compared”).

A few caveats are in order regarding RAM and the new PowerBooks. First, as was the case with the original PowerBooks, Apple strongly advises owners against installing RAM upgrades themselves; some users have fried their logic boards attempting to do this. There are too many things that can go wrong, Apple warns, and you can void your warranty if

anyone other than an authorized Apple dealer fiddles around inside the computer. The truth is, any reasonably savvy computer user can install RAM, but with a warranty at stake, why take the chance?

Second, don’t install just any RAM upgrade inside a PowerBook 180. Because that model features the fast 33MHz 68030 processor, the RAM chips added must run at least at 85 nanoseconds or they’ll cause the processor to pause before completing a task—in techy terms, that’s called a wait state. It’s no tragedy, but why spend money on a fast processor only to slow it down slightly with a 100-nanosecond RAM upgrade?

As for hard drives, the good news is that you can buy a PowerBook 160 or 180 with a 120MB hard drive installed—a logical improvement over the 80MB ceiling of last year’s high-end PowerBooks. Currently, though, 160MB is the limit for the 2.5-inch hard drive (increasingly common in laptops); that’s sure to increase within months, of course. Sounds like another third-party opportunity to me.

Power Savers

APPLE SPENT SOME TIME THINKING about how to get more juice out of the PowerBook’s nickel-cadmium batteries, which enabled Apple to add such features as video-out support, higher-capacity hard drives, and better screens, without much additional strain to the power supply.

With the original PowerBooks, you could put the hard drive to sleep after a period of time that you specified; this

saved power, but you had to wait a few seconds for the drive to reawaken whenever you saved a file or performed some other task. Apple has revised this feature into a control bar (located within the PowerBook control panel) that allows you to choose Maximum Performance (in which the hard drive rarely sleeps), Maximum Conservation (in which the hard drive snoozes after every five minutes of disuse), or any ambiguous space in between (see “Apple’s Dynamic Duo,” in this issue). But no matter what Apple calls this feature, you still have to wait for the hard drive to wake up before getting back to work. (For more information on PowerBook battery enhancements, see *Lab Notes*, in this issue.)

SCSI Improvements

THE POWERBOOK 100 WAS UNIQUE within the first Mac notebook family in that it could be connected to a desktop Mac as a SCSI device—handy for copying files from one computer to another or, if nothing else, turning your PowerBook into an external hard drive.

This wasn’t possible with the 140 and 170, though. The ability to run in SCSI mode is contained within a PowerBook’s ROM; Sony, which designed the 100 with Apple, added the SCSI capability to that computer. Meanwhile, Apple was developing ROM that would work with the 140 and 170, as well as the Quadra 700 and 900, which were under development at the same time. Apple says that it didn’t add SCSI-mode capability to the PowerBook/Quadra ROM mainly because it thought the more sophisticated notebook users, those buying the 140 and 170, would prefer to exchange files via network

POWERBOOKS COMPARED

	Original PowerBooks			New PowerBooks		
Model	100	140	170	145	160	180
CPU	16MHz 68HC000	16MHz 68030	25MHz 68030	25MHz 68030	25MHz 68030	33MHz 68030
Coprocessor	no	no	68882	no	no	68882
Standard RAM/expanded	2MB/8MB	2MB/8MB	2MB/8MB	4MB/8MB	4MB/14MB	4MB/14MB
Standard hard drive/expanded	20MB/40MB	40MB/80MB	40MB/80MB	40MB/80MB	40MB/80MB, 120MB	80MB/120MB
Backlit LCD type	passive supertwist 1-bit black-and-white	passive supertwist 1-bit black-and-white	active matrix 1-bit black-and-white	passive supertwist 1-bit black-and-white	passive supertwist 4-bit gray-scale	active matrix 4-bit gray-scale
Screen size	9 in.	10 in.	10 in.	10 in.	10 in.	10 in.
Computer size ²	11 × 8.5 × 1.75	11.25 × 9.3 × 2.25	11.25 × 9.3 × 2.25	11.25 × 9.3 × 2.25	11.25 × 9.3 × 2.25	11.25 × 9.3 × 2.25
Weight	5.1 lbs.	6.8 lbs.	6.8 lbs.	6.8 lbs.	6.8 lbs.	6.8 lbs.
Battery type	lead acid	nickel-cadmium	nickel-cadmium	nickel-cadmium	nickel-cadmium	nickel-cadmium
Ports	1 serial; SCSI; ADB; floppy drive; sound output	2 serial; SCSI; ADB; sound input/output	2 serial; SCSI; ADB; sound input/output	2 serial; SCSI; ADB; sound input/output	2 serial; SCSI; ADB; sound input/output; video out	2 serial; SCSI; ADB; sound input/output; video out
Suggested retail prices	\$1599 ⁴	\$2999–\$3299 ⁵	\$4299–\$4599 ⁵	\$2149–\$2499	\$2429–\$3149	\$3869–\$4229

¹ Math coprocessor available through docking stations only. ² Width × depth × height, in inches. ³ Other ports available through docking stations only. ⁴ Apple and Sony mand. Price is for 2/20 configuration. ⁵ Model discontinued; figures reflect last prices set by Apple. ⁶ Prices do not include docking stations or accessories.

connections and System 7's file sharing. Guess what. Apple was wrong. But they learned their lesson—sort of; the 160 and 180 can serve as SCSI devices, but not so the 145 (remember: it's basically just a 140 with a new processor).

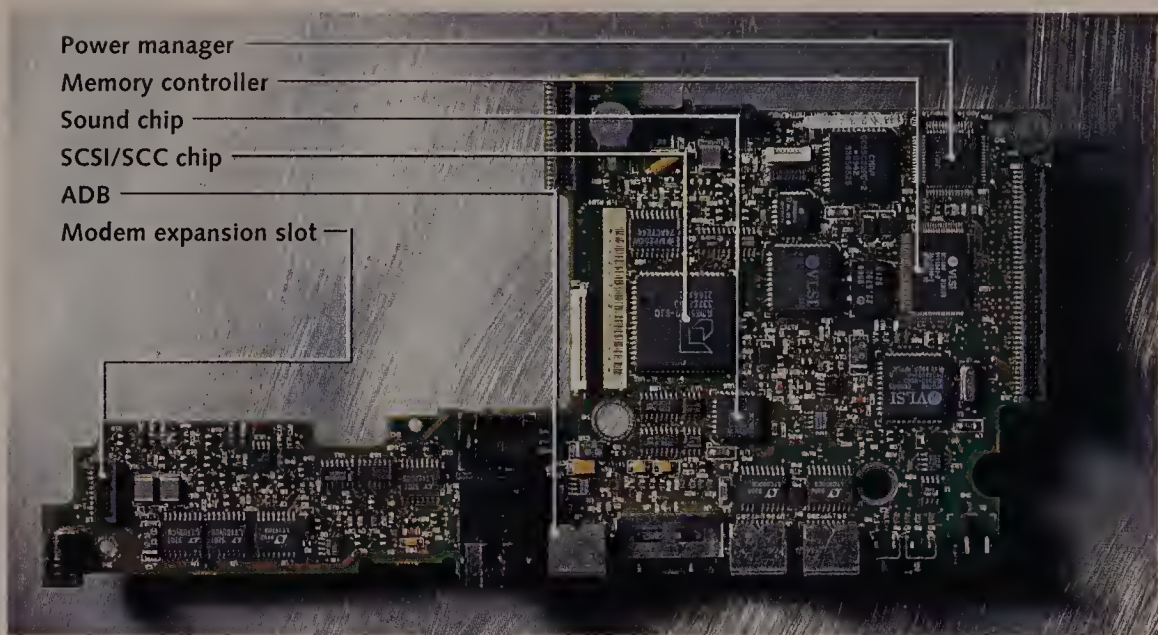
To round out the 160 and 180, Apple has added a reassuring security port near the AC adapter that enables you to lock the PowerBook to a desk with a third-party device, such as Kensington's \$59.95 MicroSaver. And finally, the PowerBook 160, 180, and Duo models include a built-in microphone—good news for those who tend to misplace things. Capturing voices might be a bit more difficult now, however. On the PowerBook 140 and 170 you can hold the microphone right up to your lips for optimal sound input; in order to get as close to the 160 or 180 mike as possible, you've got to awkwardly aim your mouth in the area between the screen and the keyboard, where the mike is located.

Complex Choices

WITH FIVE NEW POWERBOOKS, DECID- ing which one to buy can feel a bit like a visit to the supermarket to select just the right breakfast cereal—there are almost too many choices.

Price alone was once a strong deter- mining factor in a PowerBook purchase, but that's no longer the case. For example, let's say you can afford to spend around \$2500 on a PowerBook, but you want the best you can buy with that money. Six months ago, that meant you had only one choice: a PowerBook 140 with 4MB of RAM and an 80MB hard drive, with a street price of about \$2400.

Today, you've got several options in the vicinity of \$2500, based on expected



PowerBook 160 main logic board. Piggyback board (not shown) contains CPU, video-out connector, gray-scale controller, VRAM, RAM, and ROM.

store prices: the PowerBook 145, with 4MB/80MB configuration; the 160, with 4MB of RAM and an 80MB hard drive; or a PowerBook Duo 210, with 4MB of RAM, an 80MB hard drive, an external 1.44MB SuperDrive, and a floppy/ADB adapter. Now what do you do?

The biggest question is whether to buy a "traditional" PowerBook or one of the Duo models. Aside from their role as part of the docking system, the Duo mod- els certainly have the edge in portability— 4.2 pounds compared with most Power- Books' 6.8 pounds. Also, the Duos are highly flexible—you can buy as few or as many ports and accessories as you like; the Duo design is the foundation for next year's PowerBooks, according to Apple; their RAM is more expandable; and their batteries last longer.

So why wouldn't you want to buy a PowerBook Duo? Their screens are slightly smaller than other PowerBooks' (9.1 inches diagonally versus the stan- dard PowerBooks' 10-inch screen) and are backlit supertwist only; the keyboard keys are more crowded; and the Duos have a smaller trackball that could be too concave and petite for some users—all of which would make using a PowerBook Duo for any lengthy period of time un- pleasant. You can get around most of these shortcomings, but only by adding the external Duo Floppy Adapter, Duo MiniDock, or full Duo Dock docking sta- tion, thus spending more money and ac- quiring more pieces.

If you need both a desktop and a mo- bile computer, and your desktop com- puter needs aren't too ambitious, you can get by quite nicely without a PowerBook Duo docking system. For just under \$3000 you can hook up an external key- board and Apple 14-inch color monitor to a PowerBook 160 and have a solid, if lim- ited, desktop computer (PowerBooks have

no expansion capabilities aside from memory, hard drives, and modems). When you're ready to travel, just unhook the two peripherals and you're off.

The bottom line is that the Duos were designed as the mobile part of a desktop system, not as completely self-sufficient computers.

Among the fully configured Power- Books, the 145 is a good choice for any- one who needs a notebook computer only for occasional computing on the road. Keep in mind, though, that there's no video-out port, no SCSI-mode support, and no security port.

Choosing between the 160 and 180 is easy if you work with graphics, plan to spend long hours on the PowerBook, or need all the processing power you can get—in those cases, the 180 is the winner because of its superior screen, 33MHz 68030 CPU, and math coprocessor. Aside from that, deciding between the two is purely an economic decision, as they are otherwise identical.

Watch This Space

THERE ARE STILL PIECES MISSING from the new PowerBook lineup that some Mac fans will find irksome—most notably, no built-in Ethernet or MIDI support, and no upgrade path from the 140 or 170.

Still, Apple's done a good job in offer- ing the kind of fast, easy-to-use Macintosh notebook that mainstream users clamor for. And if the new PowerBook features and enhancements aren't enough for you, just wait—same time next year, Apple will undoubtedly be showing off its next gen- eration of PowerBooks. **m**

See *Where to Buy* for contact information.

Macworld Lab testing supervised by MARK HURLLOW and TIM WARNER.

PowerBook Duo Models

210	230
25MHz 68030	33MHz 68030
no ¹	no ¹
4MB/24MB	4MB/24MB
80MB/NA	80MB/120MB
passive supertwist	passive supertwist
4-bit gray-scale	4-bit gray-scale
9.1 in.	9.1 in.
10.9 × 8.5 × 1.4	10.9 × 8.5 × 1.4
4.2 lbs.	4.2 lbs.
nickel-metal-hydride	nickel-metal-hydride
sound input/output;	sound input/output;
expansion connector ³	expansion connector ³
\$2249 ⁶	\$2609–\$2969 ⁶

will continue to manufacture as long as there's a de-

The Macintosh IIvx

The latest desktop Mac is a faster version of the Performa 600



PHOTOGRAPH BY PAUL FRANZ-MOORE. SCREEN IMAGE BY JIM LUDTKE

If you think this Mac looks familiar, you're right—you saw it gracing the cover of our November issue, only under a different name. The Macintosh IIvx is a higher-performance version of the consumer-channel Performa 600 that Apple introduced in

September. It features the same case, the same basic logic board, the same attractive built-in CD ROM drive option, and the same input/output capabilities. It will be sold with the standard version of System 7.1, not with the Launcher/At Ease interface layer sold with Performas. The question about the IIvx is simple: is it worth nearly \$700 more than a Performa 600?

by Charles Seiter

What's the Difference?

THE IIvx IS THE SAME AS THE PERFORMA 600 on the outside, and it takes the same size hard drives and same types of peripherals as the Performa 600. When you look inside the case, you see the same 32MHz 68030 processor as well as some critical additions. First, the math coprocessor socket features a 68882 floating-point chip snugly in place. There's really no reason Apple should have put a math chip in all those boxes it hopes to sell at Sears, since most business or education programs will not speed up with the addition of a floating-point chip. And if those users do need a 68882, they can add one for less than \$100.

It's the second difference that's critical: the IIvx includes 32K of cache memory soldered to the logic board. Macworld Lab tests show that this seemingly modest amount of memory makes the IIvx 35 percent faster than the Performa 600 at some processor-intensive tasks (finding and replacing text in Word, for instance) and 25 percent faster at other chores (such as scrolling). Now you don't want to solder chips to the board yourself (trust me on this), so your only option to bring the Performa 600 up to IIvx speeds is to buy an accelerator board.

But let's think about that. The accelerator slot in the Performa 600 (and IIvx for that matter) requires an accelerator with its own processor, cache chips, and cache logic. Since boards loaded with this chip set sell for \$600 to \$800, you can only get a Performa 600 up to IIvx speeds

if you pay the same as what a IIfx costs in the first place.

Apple has blessed the IIfx with the best price-to-performance ratio of any computer it has ever built. The IIfx is the dealer's midrange champion (the Performa 600, in contrast, is the high end of the consumer line), with Classics and LCs strictly entry-level machines and Quadras for graphics- or computation-intensive uses. The IIfx with 4MB of memory, an 80MB hard drive, and 512K of video RAM will list for \$2949; a IIfx with a higher-capacity 230MB hard drive costs \$3319. A IIfx with the AppleCD 300i high-speed CD ROM drive, Kodak Photo CD and CD sampler, 1MB of video RAM for 32,000 colors, and 5MB of main memory will cost \$3219, a mere \$270 more than the IIfx with 4MB of memory and an 80MB hard drive. At these prices, the IIfx is certainly a good value.

While Apple will offer the IIfx to all of its international markets, the company will offer a lower-performance, lower-cost model called the IIfi to users in Europe and the Pacific. The 68030 processor in the IIfi runs at 16MHz instead of 32MHz, there's no 68882 math coprocessor (although there is a slot to add one in), and there's no cache. The base IIfi with 4MB of memory and an 80MB hard drive will cost \$2900—about the same as the IIfx in the United States.

A Better Monitor

TO ACCOMPANY ITS BEST-EVER VALUE in computers, Apple is introducing a best-ever value in monitors. The Macintosh Color Display (which replaces the 13-inch

AppleColor High-Resolution RGB Monitor and the 12-inch Apple RGB display) offers some real innovations, improved ergonomics, and a bit of press-agentry. The press-release engineering is easiest to describe. For years the AppleColor Monitor has been called 13-inch, an honest reference to the true diagonal size of the image area. Since most of the rest of the world calls the same picture tube 14-inch, this new standard Apple monitor, with the same picture dimensions as the old one, has been proudly redesignated a 14-inch monitor.

Although Apple's old 13-inch AppleColor was no slouch on quality, the new Color Display is even better in some areas. Macworld Lab tests show that the Color Display has less distortion, has better brightness, and displays colors and grays truer to their specifications. The 13-inch AppleColor has a better contrast ratio and better convergence.

Ergonomic improvements, too, are genuine. Brightness, contrast, and power switches are on the front of the monitor. A tilt-and-swivel base provides smooth positioning over a wide range. But the most important improvements are electronic: the monitor's electronics fit on a single small circuit board that gives higher beam current for more brightness, and automatic degaussing on start-up to eliminate distortion and moiré patterns. The display offers a standard 640 by 480 pixels and 70 dots per inch, but the electronic improvements have brought the weight down to 24 pounds (compared with 34 pounds for the old AppleColor Monitor) and the price down to \$599 (from \$999). You'll be able to get a system that's as fast as a IIfi, with

a great monitor, for about \$3500. Compared with last year's Macintosh prices, a IIfx system's price is a sensational deal—in fact, you may as well treat yourself to the CD ROM drive version.

How Does It Rate?

APPLE HAS ANNOUNCED THAT IT WILL offer an upgrade path for the IIfx. Third-party vendors will also offer accelerators (the PowerCache from DayStar Digital has been tested and approved). The IIfx has three NuBus slots and a 112-watt power supply, so you can add standard boards. If you buy the version with the AppleCD 300i installed, you will have the best CD ROM drive bargain ever offered.

If you are a dissatisfied inhabitant of the Plus/Classic/SE universe, or own an LC and are annoyed at its relative lack of performance, you should get a IIfx rather than a Performa 600 or an upgrade board for your current hardware. Unlike the LC and the IIfi, the IIfx has a straightforward upgrade path, and you can expect to hold onto your II investment for years. On performance grounds alone, the Performa 600 is for home users who want a CD ROM drive and room to expand, while the IIfx is ready to do serious database and spreadsheet work right out of the box. With or without the CD ROM drive, the IIfx is going to be a best-seller and the right choice for most office and home-office users through the mid-1990s. **m**

CHARLES SEITER is a *Macworld* contributing editor.

Macworld Lab testing supervised by MARK HURLOW and TIM WARNER.



How Fast Is the Macintosh IIfx?

Processor Tasks

Four tests indicate processor performance: performing a search and replace in Microsoft Word, previewing and magnifying in Aldus FreeHand, and sorting in Claris FileMaker Pro.

Drive Access Tasks

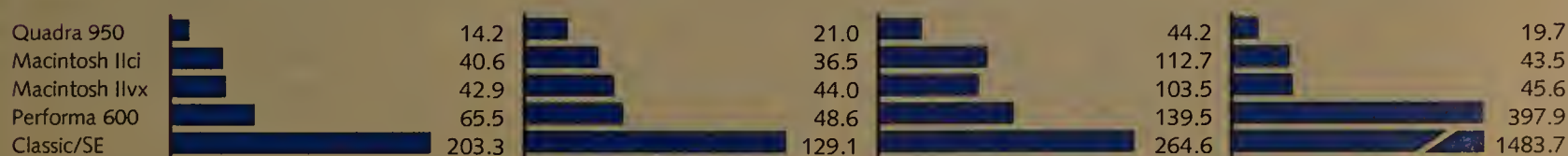
Two tests represent overall performance for tasks involving intensive access to the hard drive: opening an Adobe Photoshop file and duplicating a 3.2MB file.

Display Tasks

Two scrolling tests—in Microsoft Excel and Word—show processor performance during screen redrawing.

Math Tasks

A test in Excel—consisting of complex arithmetic functions—indicates math coprocessor performance. In computers without a coprocessor, tasks were performed by the main processor.



Times are in seconds. Shorter bars are better.

The new Macintosh IIfx sports a slightly faster processor than the IIfi and includes a built-in cache. Yet when we tested the IIfx against a IIfi that includes a cache card, the IIfx ran a bit slower overall. The Performa 600,

which is a IIfx without any cache memory or a math coprocessor, runs noticeably slower than a IIfx. All of these Macs, however, far outrun the Classic and SE.

Looking Down

With all the new Macs, how do you decide which one is for you?

With October's new product introductions and price changes, Apple has positioned Macintoshes at smoothly graded intervals on a price-and-performance scale. Even the PowerBooks are priced so that you pay only a small premium for portability. If you're wondering where you fit into this picture, read on.

by Cheryl England



Mac Classic II The Classic II (called the Performa 200 in retail stores) is Apple's only computer that retains the compact, appealing case of the original Mac. Other advantages for this machine are its low price and a 68030 processor that puts it in the mainstream of Mac computing. The only real drawback to the Classic II is its lack of color. So why don't we just love this Mac? Because it feels outdated. The Classic II performs acceptably, but lacks the zip of the discontinued SE/30—and that's a disappointment. **Processor:** 16MHz 68030. **Video support:** black-and-white. **Slots:** none. **Memory capacity:** 10MB. **List price:** 4/40, \$1079; 4/80, \$1209.



Mac LC II Apple has dropped the price on its lowest-cost color Macintosh, the LC II, even more, making this machine a bargain-hunter's dream. To understand the value of an LC II, look at it this way: with an Apple 13-inch monitor, the LC II costs about \$750 more than a Classic II and includes built-in color, more expansion capability, and a larger screen. We highly recommend the LC II (called the Performa 400 in retail stores) for schools, homes, and businesses where administrative chores such as word processing and budgeting are the normal activities. **Processor:** 16MHz 68030. **Video support:** color. **Slots:** 1 PDS. **Memory capacity:** 10MB. **List price:** 4/40, \$1239; 4/80 (with 512K of video RAM), \$1349; 4/160 (with 512K of video RAM), \$1489.

the Line

Mac IIci

For a long time the Macintosh IIci has held down the middle ground of Apple's machines. Compared with the IIx, the IIci is a tad faster, offers more slots for adding expansion boards, and comes with a math coprocessor. You can upgrade the IIci to a Quadra 700 (one of Apple's workstation-class machines), so it's not a dead-end Mac. But Apple has already announced that it will provide an upgrade for the IIvx; when that happens there won't be any reason to purchase a IIci over a IIvx. **Processor:** 25MHz 68030. **Video support:** color. **Slots:** 3 NuBus, 1 cache. **Memory capacity:** 32MB. **List price:** 5/SuperDrive, \$2539; 5/80, \$2719; 5/230, \$3089.



Mac IIx

The IIx is slightly faster than the LC II and comes with an extra 1MB of memory in the basic configuration—and for that Apple charges an additional \$500. Apple offers no upgrade path for this Macintosh and, as with the LC II, the slim case limits expansion options. You're better off buying either a bargain-priced LC II or investing a bit more heavily for the new IIvx (the Mac we're betting will become Apple's midrange champion). **Processor:** 20MHz 68030. **Video support:** color. **Slots:** 1 PDS or 1 NuBus. **Memory capacity:** 17MB. **List price:** 3/40, \$1749; 5/80, \$1999; 5/160, \$2139.



Mac IIvx

The base IIvx offers all the features of the IIci plus more, and yet costs only \$200 extra. The IIvx runs at the same speed as a IIci with a cache card—and that's before adding a third-party accelerator into the IIvx's special slot (a slower version of the IIvx is sold through retail stores as the Performa 600). What makes this Mac even more of a bargain is Apple's offer of a speedy, high-quality, internal CD ROM drive for only \$300. For a traditional desktop system with more punch and features than the LC II, the IIvx can't be beat. **Processor:** 32MHz 68030. **Video support:** color. **Slots:** 3 NuBus, 1 accelerator. **Memory capacity:** 68MB. **List price:** 4/80, \$2949; 4/230, \$3319; 5/80 with CD ROM drive, \$3219.

If we could afford PowerBook 180s, we'd



Mac Duo Dock This odd-duck product, with a companion Duo PowerBook, costs about the same as a 11vx with a CD ROM drive. The Duo Dock is a chassis with two slots, a storage bay, built-in color video, and standard ports. The heart of the Duo Dock—and the part that provides this Mac's logic board—is a new PowerBook, the Duo 210 or 230. When the PowerBook Duo 210 or 230 is inserted, the Duo Dock works like a desktop Mac. Alternatively, the Duo 210 or 230 can be pulled out and taken traveling, just like a standard PowerBook. Reactions here have been mixed—some of us would love to be first to try it, while others would rather wait to see if it really is the best of both worlds. **Processor:** Duo 210, 25MHz 68030. Duo 230, 33MHz 68030. **Video support:** color. **Slots:** 2 NuBus. **Memory capacity:** 24MB via the Duo. **List price:** \$1079 (docking station only).



Mac Quadra 700 Both the Quadra 700 and Quadra 950 are built from the ground up for performance. Both have speedy processors, fast SCSI and NuBus connections, hefty power supplies, and built-in support for 24-bit color. The Quadra 700 is a tad slower than the 950 and has less built-in memory and fewer internal expansion options. It's also cheaper. **Processor:** 25MHz 68040. **Video support:** color. **Slots:** 2 NuBus, or 1 NuBus and 1 PDS. **Memory capacity:** 20MB. **List price:** 4/SuperDrive, \$4219; 4/80, \$4669; 4/230, \$5039; 4/400, \$5849.



Mac Quadra 950 The Quadra 950 is Apple's top-of-the-line performance machine. It has more slots than the 700, a larger power supply, and a slightly faster processor. We highly recommend either Quadra for users with demanding applications such as prepress work, complex illustration, page design, or 3-D modeling. The 950 is best suited for video work and other applications where throughput, maximum memory, and peripherals are of ultimate importance. **Processor:** 33MHz 68040. **Video support:** color. **Slots:** 5 NuBus, or 4 NuBus and 1PDS. **Memory capacity:** 64MB. **List price:** 8/SuperDrive, \$6539; 8/230, \$7359; 8/400, \$8169.

buy 'em



Mac PowerBook 160 Like the PowerBook 145, the PowerBook 160 uses a passive supertwist display and a small, light case. For \$300 more the 160 gives you two nice higher-scale features—a 4-bit gray-scale display and a video-out connector for attaching an external monitor. Even nicer, the 160 supports color—up to 256 colors on a 16-inch monitor. This PowerBook is perfectly suited to frequent travelers, executives, and anyone who can afford to pay for added flexibility. **Processor:** 25MHz 68030. **Video support:** gray-scale. **Slots:** none. **Memory capacity:** 14MB. **List price:** 4/40, \$2429; 4/80, \$2789; 4/120, \$3149.



Mac PowerBook 145 The most basic PowerBook, the 145 is a solid choice for someone who wants to work at home on occasion or travels a few times a year. The black-and-white screen displays some ghosting, but it's not too bad for short-term work. The biggest drawback to this PowerBook is its lack of a video-out connector for hooking up an external monitor. **Processor:** 25MHz 68030. **Video support:** black-and-white. **Slots:** none. **Memory capacity:** 8MB. **List price:** 4/40, \$2149; 4/80, \$2499.



Mac PowerBook Duo 210 and 230 These very tiny (1.4-inch thick), very lightweight (4.2-pound) PowerBooks are designed to be used with the Duo Dock, not to compete with the standard PowerBooks. The Duos cost about the same as the PowerBook 145, yet they lack a floppy drive and have only a modem port and a serial port. Other ports such as an ADB port, a video port, sound ports, and a SCSI port come on an optional attachment called the Duo MiniDock. Battery life isn't as long as with a standard PowerBook, and the keyboards and trackball are even smaller. Still, combined with the Duo Dock, these PowerBooks are a great choice for occasional road trips or for working at home. **PowerBook Duo 210. Processor:** 25MHz 68030. **Video support:** gray-scale. **Slots:** none. **Memory capacity:** 24MB. **List price:** 4/80, \$2249. **PowerBook Duo 230. Processor:** 33MHz 68030. **Video support:** gray-scale. **Slots:** none. **Memory capacity:** 24MB. **List price:** 4/80, \$2609; 4/120, \$2969.



Mac PowerBook 180 The high-end PowerBook, the 180 offers an active matrix, 4-bit gray-scale display that is addictingly crisp. That luxury, however, comes at a premium cost—\$1100 more than a 160. Still, executives and people who travel more than they sit at a desk may want to plunk down the extra dollars to avoid eyestrain or awkward sitting positions. If we could afford these, we'd buy 'em. **Processor:** 33MHz 68030. **Video support:** gray-scale. **Slots:** none. **Memory capacity:** 14MB. **List price:** 4/80, \$3869; 4/120, \$4229.



by Robert C. Eckhardt

FRED IS IN SHOCK. HIS HARD DRIVE, which he affectionately calls Old Reliable, lies belly-up and lifeless on a desk piled high with unmet deadlines. Because all hard drives have a finite life span and many succumb to temporary hardware and software illnesses, most Mac owners can relate to Fred. But take heart: well over 90 percent of all sick hard drives can be cured, experts say, and most can be treated easily at home or in the office without resorting to the high-priced services of a professional drive doctor. On the following pages, I distill the wisdom of a half-dozen hard drive experts (ranging from hardware and software techies to user-group gurus) into six steps

Hard

STRONG MEDICINE

anyone can follow to diagnose a sick hard drive and, with luck, bring it back to health.

Symptoms of a Sick Drive

SICK HARD DRIVES DISPLAY SYMPTOMS BOTH blatant and subtle. The obvious problems are hard to overlook.

- The Mac does nothing but display a blinking question mark.
- The Mac initiates the start-up process and then displays the bomb dialog box or the Sad Mac icon (and possibly plays a chime as well).
- The Mac starts up properly but fails to mount the hard drive (that is, place the drive's icon along the right edge of the screen).
- The Mac states that the hard drive is not in Macintosh format or is damaged and asks if you want to initialize it. (Do *not* initialize it! If you do, you will lose all your data.)

More subtle symptoms include read or write errors when copying files, and crashes (such as

a bomb dialog box, an immovable pointer, or an unresponsive keyboard) that result from opening a folder, launching an application, or copying a file.

But before you jump to conclusions about what's causing your hard drive's trouble, note that other hardware—and even software—can produce similar problems. For example, some accelerator boards and cache cards are incompatible with System 7's 32-bit addressing mode. If you were to turn on 32-bit addressing (in the Memory control panel), the Mac would crash during start-up and the problem would look for all the world like a hard drive failure. Because you can waste a lot of time barking up the wrong

you hear the drive mechanism? (If your unit has a fan, the fan will make a steady whine almost from the moment you turn the drive on. The drive mechanism, on the other hand, will increase in pitch and volume for the first few seconds, click a few times, and then settle into a steady hum.)

If the drive mechanism produces no audible signs of life, the problem is a dead power supply, a mechanical failure, or *stiction* (computerese for an improperly lubricated drive platter; see "Stiction Defined"). You can sometimes solve a stiction problem temporarily by slapping the drive smartly on one side. But even if slapping the drive around gets it going again, a drive that

Drive Rx

FOR SICK HARD DRIVES

tree with nondrive problems like these, it's a good idea to strip off all your fancy hardware and revert to a plain Mac before you point an accusing finger at the hard drive.

STEP ONE:

Stay Calm and Don't Overlook the Obvious

IF YOUR DRIVE APPEARS TO BE DEAD OR DYING, take a deep breath and follow Rule 1: *Don't panic*. Next, abide by Rule 2 religiously: *Use your head and think clearly and logically*. Work through your hard drive problem in a cool, calm, and collected way. Run tests in a logical order (as outlined here, for example). Choose the next test on the basis of the previous test's results. Be sensible and rational and optimistic.

To avoid acute embarrassment, always check out the things you take for granted: Is the hard drive plugged in? Is it turned on? If the fuse is readily accessible, is it still intact? Put your ear to the drive case and switch on the drive. Can



doesn't spin up properly is seriously ill and should receive professional treatment right away. (If stiction is the problem, back up your data before giving the drive to the disk doctor, since replacing the entire drive mechanism is the only cure.)

If the drive mechanism is purring contentedly and the drive is brand-new, right out of the box, you probably need to format and initialize the drive and install the necessary system software. The drive should come with a utility for formatting and initializing and a manual to explain how. If not, you can use a program like FWB's Hard Disk Toolkit instead. Disks and instructions for installing system software either accompany the Macintosh or, for System 7 users, are available in Apple's Macintosh System Software v7 Personal Upgrade Kit.

If the drive is not brand-new and was functioning properly only a short while ago, ask yourself if you recently changed anything of consequence. For example, did you add a new device to your SCSI chain, change the order of SCSI devices, or replace or swap cables or terminators? Did you install new control panels (cdevs in System 6) or system extensions (INITs or start-up documents in System 6), or change a control-panel setting? If so, undo your change if you can. If reverting to the previous state doesn't solve the problem, or if you can't undo your last change (because it was a software change,

for example, and you can't access the drive), then it's time for Step Two.

STEP TWO:

Start Up with a Floppy Disk

TAKE A FLOPPY DISK CONTAINING A System Folder that you know is function-

If neither fix works, or if you have no idea what might have gone wrong, back up your most recent work immediately (you have a recent backup of everything else, don't you?) and go to Step Three.

If the hard drive's icon does not appear when you restart with the floppy, the



software probably caused the hard drive's troubles if it works

ing properly and restart the Mac using that disk as the start-up disk. This simple test quickly narrows the possible sources of a drive's problems. I strongly recommend that you create an emergency floppy start-up disk *before* trouble strikes—finding or creating a start-up floppy after your hard drive dies can be truly frustrating. Symantec's Norton Utilities for Macintosh 2.0 comes with two ready-made emergency start-up disks; to create one yourself, simply make a copy of the Disk Tools or System disk (the name varies by System version) from your Mac system software package.

In general, if the hard drive mounts properly and behaves normally when you restart with a floppy disk, the source of your drive headache is probably a relatively straightforward software mishap. Check to make sure that you have only one System Folder on your start-up disk (by searching for *System* using the System 7 Finder's Find command, for example). If you've made a recent system change (such as adding a new extension or turning on 32-bit addressing), try reversing the change to see if that resolves the problem.

difficulty is likely to be a more complex software problem or a hardware problem. Remain calm, keep your fingers crossed, and proceed to Step Four.

STEP THREE:

Root Out Corruption and Conflicts

CORRUPTED SYSTEM SOFTWARE AND conflicts among extensions and control panels are two of the most common sources of hard drive illness. The first step in rooting out these problems is to prevent all nonessential extensions and control panels from loading and see what happens. System 7 users can do so simply by restarting with the hard drive as the start-up disk and holding down the shift key during the start-up process. System 6 users will need to move all cdevs and start-up documents out of the System Folder (to find them quickly, list the contents of the System Folder window by kind) and then restart with the hard drive as the start-up disk. If the drive now works, you've either got one or more corrupted extensions or control panels, or a conflict between two or more of them.

Because there's no easy way to determine if a file is corrupted, the safest course is to remove all old extensions and control panels (if you've haven't done so already) and install all new files from the master disks. If the drive still doesn't work, then maybe the problem is a conflict between system resources. To check for conflicts, remove all non-Apple system resources. Then reinstall and work briefly with one file at a time, or use an extension manager like Inline Design's INITPicker or On Cue II's On Startup (from Icom Simulations), both of which can automatically disable the source of an extension or control-panel conflict.

If extensions and control panels aren't your problem, replace the System file and Finder. First back up the fonts and sounds (in System 7) or fonts and desk accessories (in System 6) residing in the to-be-replaced System file. (In System 7, double-click on the System file to open it and copy the sounds and fonts by hand; in System 6, use Font/DA Mover to copy fonts and desk accessories to two new suitcase

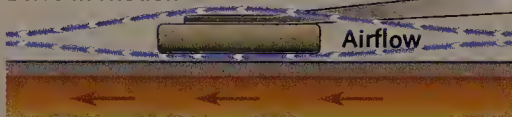
Stiction Defined

When the read-write head sticks to the platter, and the drive won't go, the problem is called *stiction*. Most modern hard drives have little or no trouble with stiction because their heads are designed so they don't have enough surface area to stick to the lubricant on the platter. But the problem does crop up in older drives. There is no permanent solution other than replacing the drive mechanism.



When the drive is at rest, the read-write head floats on a thin coating of lubricant so it doesn't damage the platter. (At power-off, the head is *parked*; it rests on unused sectors near the center of the platter, still floating on the lubricant.)

Drive in Motion



As the drive spins (shown by arrows), airflow causes the read-write head to lift above the platter; this is similar to the way an airplane wing works. (The head reads the data without touching the platter by sensing changes in the magnetic field.)

Stiction



If the lubricant has contaminants, it can get gummy and cause the read-write head to stick when the platter tries to spin. (The drive's motor is designed to stop trying to spin the platter as soon as it encounters resistance, because forcing it might cause the stuck head to scratch the platter's surface, destroying data.)

files, one for fonts and one for desk accessories.) Next, restart with the System Software Installer (System 7) or System Tools (System 6) disk as the start-up disk, open the System Folder on the hard drive, throw the old System and Finder files in the Trash (that's right, throw them in the

drive and the Mac—using the Update Driver (or similar) command in the utility provided by your hard drive's manufacturer or using a generic drive utility such as Hard Disk Toolkit.

If updating the driver doesn't work, reset the Mac's Parameter RAM (PRAM). PRAM is where many basic control-panel settings, such as the time, date, start-up disk, and AppleTalk status, are stored. If you're using System 7, reset PRAM by restarting the Mac and pressing option-control-P-R during the start-up sequence. System 6 users should hold down ⌘-option-shift as they select the Control Panel from the Apple menu. Once PRAM is reset, open the Startup Disk control panel, select the problem hard drive, and restart the Mac. (You'll also need to reenter all your basic control-panel settings.)

If you've had no success so far, or if the drive now starts up properly but some folders and files are missing, blank docu-

ment icons appear instead of the correct application icons, or the system crashes when you try to open files or folders, it's time to turn to Disk First Aid. You'll find this often-ignored but surprisingly helpful utility on the Disk Tools (System 7) or Macintosh Utilities (System 6) disk in your Mac's system software package. Use a copy of that disk as the start-up disk, launch Disk First Aid, select the problem hard drive, and click on the Open and Start buttons. (To see a running commentary on what the program is doing, press ⌘-S immediately after clicking on the Start button.) If Disk First Aid reports and repairs any problems, restart and see if the drive now runs properly.

If your drive still gives you problems, you've got one final trick up your sleeve: Rebuilding or replacing the drive's Desktop files. (Desktop files, invisible under ordinary conditions, store important information about the files on your hard drive.) For a "lite" Desktop file rehabilitation, press ⌘-option during the start-up sequence and answer OK when asked if you want to rebuild the Desktop files. To get the full treatment and a better shot at solving a tough problem, use a utility that can see invisible files, such as CE Software's DiskTop or Central Point Software's MacTools 2.0, to locate and move the Desktop files into any folder. When you restart the Mac, it will automatically create a completely new set of Desktop files.

If any technique in this step successfully revives the drive, *always* check for viruses. A hard drive brought down by a virus infection will have repeated relapses unless you eliminate the source of the infection. Simply treating the immediate problem (a corrupted file, say) is insufficient. Use a full-strength, up-to-date anti-virus program such as Symantec's SAM, Microcom's Virex, or John Norstad's free and widely distributed Disinfectant to diagnose and cure a viral infection.

If the techniques in this step don't revive the drive, go to Step Five.

STEP FOUR:

Make the Right Connections

IF THE FLOPPY-DISK START-UP TEST fails, the next step is to determine whether the problem is within the drive itself or elsewhere. ("SCSI Do's and Don'ts" shows where troubles might lie.) To determine if the source of your grief is elsewhere—in your Macintosh system unit or in the SCSI chain, of which the hard drive is a part—run the hard drive all by itself from a different Macintosh using a SCSI cable and terminator that are known to be functioning properly. (If the test Macintosh has an internal hard drive,

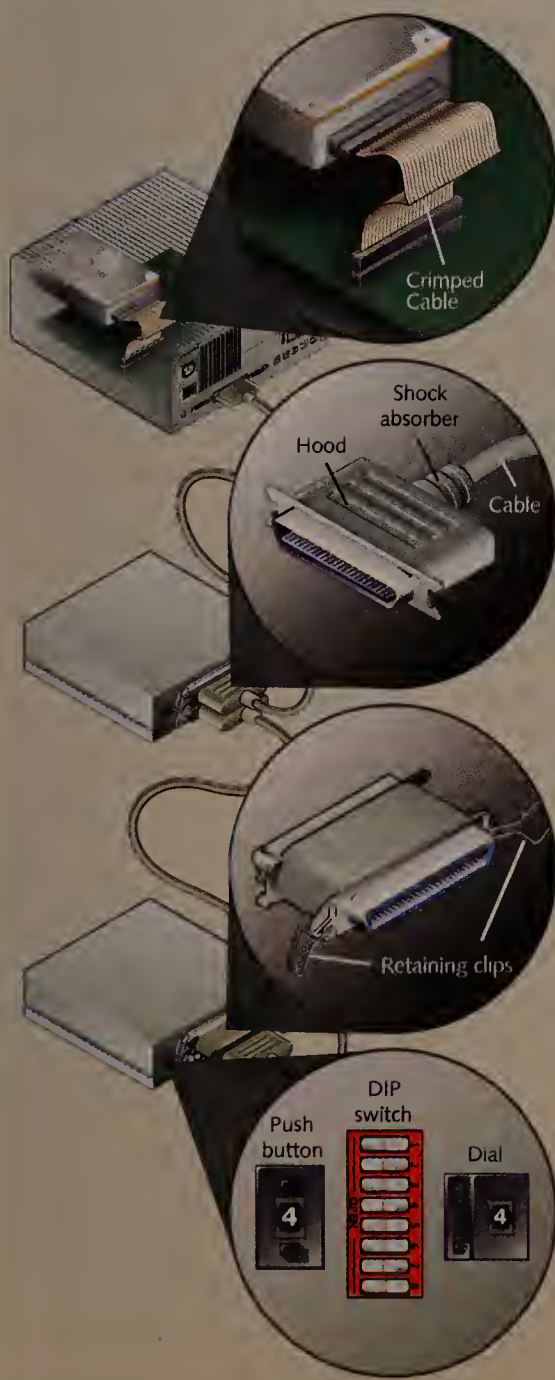
when you restart with a floppy

Trash), and empty the Trash. Then install all-new system software.

If this does the trick, you'll probably want to install new fonts, sounds, and desk accessories from the master disks, since one or more of them may be corrupted.

Still no luck in getting the Mac to start from the hard drive? Try replacing the hard drive's driver—the software that facilitates communication between the

SCSI Do's and Don'ts



Internal Cable Don't crimp the flat-ribbon SCSI cable connecting the internal hard drive to the Mac. You can bend and fold the cable as long as you don't flatten folded areas. If you crimp the cable, you may break one of the wires, which could cause the drive to stop working. (If you do break a wire, replace the cable.)

External Cables Buy quality SCSI cables. Look for a shock absorber around the part of the cable that comes out of the hood; this minimizes the risk of breaking a wire when you pull on the hood or cable. Solid, hefty construction is a plus. A cheap cable hood, whether molded or held together by screws, can be misaligned or crack open easily.

Termination Connector Terminate the first and last device in your chain. The first device is usually the internal hard drive, which is already internally terminated. The last device should have an external termination connector, either between the SCSI cable and the drive's SCSI port or on a free SCSI port (for drives that have multiple SCSI ports). Make sure your last device is turned on—if not, no devices on the chain will work.

SCSI Addresses Set your peripheral's SCSI address to a number not used elsewhere in the chain. Your internal hard drive is set at 0, so don't use that number for any other device. There are several mechanisms used to set SCSI IDs; they all perform the same task. Three popular mechanisms are push buttons, DIP switches, and dials. Verify SCSI ID settings by using a program like FWB's Hard Disk Toolkit or Golden Triangle's DiskMaker.

make sure it is protected from viral infection.) If another Mac is not available, disconnect all other SCSI devices and try the problem drive with several different cables and terminators (in case one or more have gone bad). If the problem drive runs OK in isolation or on another Mac, the difficulty is external to the drive.

You can rule out the Mac system unit by borrowing someone else's hard drive, with its cable and terminator, and running it by itself on your Mac. If the borrowed drive does not work properly, your Macintosh system unit is probably at fault and should be taken in for repair. If the borrowed drive does work properly, the difficulty must lie somewhere along the SCSI chain: you've got cable problems, a bad terminator, an incorrectly located terminator, a SCSI ID number conflict, a bad connection, or a finicky SCSI device.

SCSI chain geometry is often arcane, so sometimes only a Mac guru can resolve a SCSI hang-up. But there are some SCSI problems the rest of us can correct.

First, check carefully to make sure that the SCSI chain is linked together properly and all connectors are tightly fastened. Use good-quality cables that are as short as your office configuration allows. Quality SCSI cables have molded ends and are well shielded and thus fairly thick and unyielding. It's best to use the same kind of cable for all your SCSI devices (you know what they say about one weak link in a chain) and to keep the total length of cable as short as possible (never more than 18 feet). Since a dead SCSI cable looks just like a live one, you need to experiment one cable at a time to see if one's gone bad. If you have a modular Mac with an internal drive, you should also open the system unit to make sure the internal SCSI cable (the wide, flat one) isn't crimped or pinched.

Second, be sure all devices on a SCSI chain have a unique ID number. The Mac itself is always assigned ID 7, and the internal drive (if you have one) should be assigned ID 0 (zero) by the vendor. External SCSI devices must be assigned a number from 1 to 6 (or 0 to 6 if you have no internal drive), usually with a dial or push button on the back of each unit. To ensure that the internal drive is indeed assigned ID 0, and to confirm that the other devices are numbered as expected (sometimes the number displayed by the dial or push button on the external drive is incor-

rect), use a program like Robert Polic's SCSI Probe, Norton Utilities, or Hard Disk Toolkit to read the ID numbers actually in use (see "Tracking SCSI IDs"). The formatting software that comes with the drive may also tell you this.

Third, check termination. The general rule is to place a terminator at both

terminator mounted on the logic board; the only way to know it's there is to open the Mac and look inside. Many older (and some newer) external drives have a terminator built in; there's no way to tell which do and which don't except by reading the manual. And although they look like functional terminators, accidentally shorted



SCSI chain geometry is often arcane, but there are some SCSI

the beginning and the end of the SCSI chain; Macs with internal drives already have an internal terminator and thus need to be terminated only at the far end of the chain (see "Internal Termination").

SCSI rules, however, were apparently made to be broken. The Mac IIx requires a special terminator, for example, and all PowerBooks require two terminators (one on the first external device and one on the last external device), even though they have a terminated internal drive. To make things worse, some Macs lacking an internal drive nonetheless have an internal ter-

(and thus dead) terminators are equivalent to no terminator at all. Faced with such complexities, your best bet is to treat terminators with care (and suspicion) and carefully follow the termination scheme recommended in your Mac's manual.

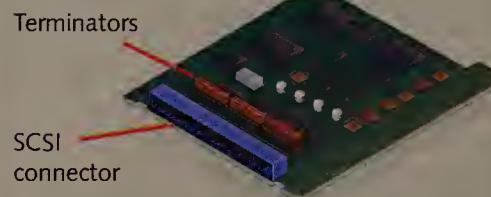
Finally, as if things weren't bad enough already, SCSI devices themselves can be finicky about whether or not they're turned on and where they link into the chain. In theory, you should be able to place SCSI devices in any order in a chain and leave any SCSI device turned off. In practice, some SCSI devices can bring the entire chain down if they're turned off; if a SCSI device is turned off and you are experiencing problems, try turning that device on. In addition, certain devices, such as many scanners and tape drives, can create problems unless they're placed at the end of the chain. Two touchy SCSI devices may not be able to coexist peacefully on the same chain; to use one, you'll have to disconnect the other.

If no amount of SCSI adjustment succeeds in reviving your hard drive, the fault is fairly serious and probably lies somewhere within the drive itself. To determine just how serious the problem is, proceed to Step Five.

STEP FIVE: Drastic Measures

IF YOU'VE COME THIS FAR AND YOUR hard drive still doesn't work properly, the solution to your problem requires either strong medicine or outside help. Either way, if you don't have a current backup of your important files, you need to think carefully about if and how to recover your data, since proceeding any further may make data recovery more difficult, perhaps even impossible (see "Choosing a Data-Recovery Method"). Once that issue is resolved, and assuming there's no one down the hall who is paid to do it for you, it's time to roll up your sleeves and administer CPR to your disk drive. MacTools and Norton Utilities for Macintosh both contain disk-recovery modules; Norton's Disk Doctor is the one I recommend for the full treatment.

Internal Termination



The first device in a SCSI chain must be terminated. An internal hard drive is—by default—the first device. Unlike terminators for other SCSI devices, the terminators for an internal drive are located on the Mac's logic board, behind the SCSI connector. If you're having trouble chaining SCSI devices, make sure the internal terminators are installed on the logic board.

SCSIProbe 3.2				
SCSIProbe 3.2				
ID	Type	Vendor	Product	Version
0				
1	DISK	MAXTOR	XT-8380S	AP9
2	DISK	SyQuest	SQ555	FFH
3	ROM	SONY	CD-ROM CDU-8001	3.2i
4				
5	CPU	HP	C1750A	3125
6				
7	CPU	APPLE	MACINTOSH IIx	\$0178
<div>Update Mount Options...</div>				

Tracking SCSI IDs SCSI Probe can tell you which SCSI IDs are being used and, if you're versed in techie shorthand, the types of devices to which they're assigned. Here, for example, a standard hard drive, a removable hard drive, a CD ROM drive, and a scanner are attached to a Mac IIx.

Using your start-up floppy as the start-up disk, launch your disk-recovery program and ask it to diagnose and repair the problem drive. If it reports and repairs only a few problems and the drive appears cured, you can use the drive as is—if you're careful and back up your work religiously. But the wisest course is to back

If your disk-recovery program reports a lot of problems and repairs them, don't tempt fate; once again, it is safest to back up everything, reformat the drive, and install new system software. Do the same if your disk-recovery program reports problems that it can't fix or if it finds *bad sectors* (or *bad media* or *bad blocks*)—whether or not it claims to be able to fix them. (Bad sectors are areas on the disk that can no longer store data reliably.) Fixing bad sectors by “marking them off” or “zeroing them out”—telling the Mac not to read or write to them—is a common and reasonable short-term fix (to give you time to meet tomorrow's deadline and then back everything up). But hard drive experts all agree that reformatting the drive is the only proper remedy for bad sectors.

If your disk-recovery program cannot repair the drive but your hard drive utility or the Mac's Hard Disk Toolkit can recognize the drive (and the critical data on it is already backed up), then reformat the drive and install new system software and see if that eliminates the problem. If none of your drive utilities or repair utilities acknowledge that the drive exists or if reformatting the drive doesn't clear up the problem, proceed to Step Six.

STEP SIX: Last Resort

SAD TO SAY, BUT THERE'S NOT MUCH left that mere mortals can do. A call to the drive manufacturer's technical-support line may be worthwhile; describe all the tests you've done and repairs you've made and see if they have any other recommendations. You might also check with your local user group. Many groups have regularly scheduled drive clinics, and although such clinics are not likely to perform tests much more sophisticated than those outlined here, they may use utilities that will succeed where yours has not. If these tests, too, fail to produce results, it's time to send the drive out for repair.

Famous Last Words

THE OLD SAW ABOUT AN OUNCE OF prevention being worth a pound of cure is certainly true for hard drives. You'll have fewer headaches if you treat your drive, cables, and terminators with care, install a full-strength antivirus utility that prevents infection, and add new files to your System Folder cautiously.

Many Mac gurus also suggest that you reinstall the Mac system software and update the hard drive driver every few months and rebuild the Desktop files every month or so. An occasional scan with Apple's Disk First Aid or Norton Utilities' Disk Doctor also can't hurt and could catch and repair small problems before they become big disasters. (If you own Norton Utilities, installing FileSaver and creating the Volume Information File for your hard drive—and storing a backup of it—are also good medicine.)

And, of course, back up your important data constantly. If you play your cards right, you should rarely, if ever, need to use the drastic measures outlined in Steps Five and Six. If you play your cards well, you may never get to Step One. **m**

See *Where to Buy* for contact information.

ROBERT C. ECKHARDT, a *Macworld* contributing editor, is coauthor of *Desktop Publishing Secrets* (Peachpit Press, 1992). His hard drive has a Do Not Resuscitate notice on it, since it is frail and exhausted from nearly five years of hard labor.

problems most people can solve

up everything, reformat the drive (to wipe the slate clean), install all new system software, and restore your applications and files. (Think of it as a chance to reorganize your files the way you want them.)

Choosing a Data-Recovery Method

I've never met anyone whose hard drive died five minutes after the last complete backup. In the real world, most hard drive problems occur at especially inconvenient times—days, weeks, or (heaven forbid) months after the last backup. If you can't revive the drive by following the steps outlined in the main text, or if your revived drive has corrupted files, most likely you need some way to recover lost data.

There are two basic recovery methods to consider: using a data-recovery program or hiring a data-recovery service. The decision boils down to this: how much are your lost files worth to you? How much, in other words, would it cost you to reconstruct the files you really need? If your lost files are priceless (or at least very expensive to replace), you should seriously consider abstaining from Steps Five and Six in the main text (and perhaps even Step Three) and sending your drive to a data-recovery specialist.

According to Scott Gaidano of DriveSavers, a Mac-only national data-recovery service based in Novato, California, messing around with the drive's software may make data recovery even more difficult should your well-meaning (but possibly harmful) attempts fail. Also, if your sick hard drive is a large-capacity drive or a file server with over 10,000 files stored on it, don't even think about resurrecting the data yourself—the chances of causing major damage are too high. Check with DriveSavers, or contact your drive manufacturer or a local user group for the names of data-recovery specialists in your area.

At the opposite end of the scale, if only a few hours' worth of data is lost (and your time is worth something less than a princely sum), then passing up the expensive data-recovery specialist is relatively easy. Because you have little to lose if you fail, trying to recover the data yourself involves little risk. Any of three programs can help in your recovery attempts.

- **Symantec's Norton Utilities for Macintosh, version 2.0**, combines and replaces the old Norton Utilities and SUM (Symantec Utilities for the Mac) and leads the field in automated disk repair and data recovery—it was the top choice of all the experts surveyed because of its broad set of tools and proven track record.

- **Central Point Software's MacTools 2.0**, the Swiss Army Knife of disk utilities, contains competent data-recovery and disk-repair modules. It is a second choice to Norton.

- **Microcom's Utilities** demands more attention and input from the user than the other two (fortunately, the manual provides all the essential information). But it's your best bet for retrieving the text in files corrupted beyond repair.

Most of us are likely to own only one of these programs, but if you have access to several, keep in mind that one recovery program (including the now-discontinued SUM) may well succeed—for no obvious reason—where another has failed.

Of course, it's that gray zone between priceless data and little to lose where the hard choices lie. To decide between a data-recovery specialist and a do-it-yourself job, make a hard-nosed assessment of what it would really cost to reconstruct everything worth reconstructing. Then compare that with the price of a recovery program (plus the value of the time it takes to use it) and \$300 to \$600 (or more, for drives over 150MB) for a recovery specialist.

The more valuable your lost data is, the more appealing the data-recovery specialist becomes—and the more likely you are to perform regular, even daily, backups in the future.



Safe bets: From top to bottom, the Optima Technology MiniPak 150T, the Procom Technology PMT600/M, and the Dynatek DAT 4000.

A RICH HARVEST OF TAPE DRIVES
MEANS REASONABLE PRICES AND
CLEAR CHOICES

Tape Backup Bounty

There are two kinds of computer users: those who *have* lost their data to a hard drive crash or other problem, and those who *will* lose their data. If you're in the first group, chances are you've learned from the experience and are now backing up your hard drive. If you're in the second group, consider this: a recent backup can mean the difference between an inconvenience and a disaster.

Here's a case in point. During the Los Angeles riots earlier this year, many businesses were robbed; some were burned to the ground. After the violence, one of my clients called and told me that his athletic-clothing company's offices had been looted to the walls. All of his inventory, his entire network of Macs, and worst of all, his AppleShare file server had been stolen. But because he had a current backup of all of his operational data on a tape cartridge, he was able to get his business back up and running as quickly as he (and his insurance company) could purchase new equipment. Less than two weeks after the theft, my client was entering orders, printing invoices, and shipping sweatshirts again—all because he had the foresight and discipline to back up to tape.

Tape drives, like hard drives, are more alike than they are different, so after you decide which tape format to use, price should come to the fore of your buying criteria. To measure the value of a particular tape drive, figure the drive's price per megabyte of storage. You should also consider the backup capacity you require, the backup software that comes with the drive, and whether you want to use the drive to back up more than one Macintosh. In order to make those decisions, consider the various tape formats. In this year's roundup, we look at drives using five formats—DC2000, DC6000, Teac, DAT, and 8mm helical.

by Tom Negrino

Quarter-Inch Drives

THE QUARTER-INCH-CARTRIDGE (QIC) DRIVES were the first tape-backup units for the Macintosh. To record data these drives use .25-inch-wide magnetic tape encased in a hard plastic shell with a machined aluminum baseplate. This rugged construction makes for precise head alignment—the read-write tape heads are always positioned correctly over the tape—and good reliability, but adds to the cost of the cartridges.

TAPE DRIVES, LIKE HARD DRIVES, ARE MORE ALIKE THAN THEY ARE DIFFERENT

The QIC family consists of two lines. The DC2000 line is appropriate for personal backup, holding between 40MB and 120MB, depending on tape length and the formatting scheme used. The DC6000 line, for large amounts of data, has capacities from 150MB up to 2GB.

While still very popular for IBM-compatible computers, DC2000 drives suffer from a variety of drawbacks that have led to their decline in the Mac market. Current models are limited to low (120MB) capacity; they're noisy in operation; they have the slowest mechanisms of all the tape drives we tested; and they are almost twice as expensive to operate as any of the other drives on the market, with tapes costing about 25 cents per megabyte. Because of these negative attributes, I don't recommend a DC2000 drive. This year, only two manufacturers listed a DC2000 unit, and we only received one for testing, a new Teac unit by Tulin Corporation.

The Apple Tape Backup 40SC, which has recently been discontinued, was a DC2000 drive that had a capacity of 38MB. A fair number of these drives are still in use, despite being slower than vir-

tually all other tape drives available. One way to cut backup times with the Apple drive in half is to discard Apple's backup software and use Dantz Development's Retrospect instead.

The other kind of QIC drive, the DC6000 format, is much healthier in the Mac market than its smaller cousin. The DC6000 cartridges are larger than their DC2000 counterparts, and hold much more data. There are four types of DC6000 drives available. The 150MB unit can hold 250MB with an extended-length tape. The midrange unit has a capacity of 320MB, and 525MB with the extended-length tape. This is an especially quick drive, turning in very good backup times in our lab testing. The 1GB drive uses a new tape formulation that can pack data more densely and is even faster than the 525MB drive. The newest addition to the DC6000 family is the 2GB unit, which shipped after our deadline for product testing.

Because there are faster and less-expensive choices in other tape formats, notably the Teac 600MB drives, I can't recommend the 250MB DC6000 drives. Good 525MB drives come from Novastor Corporation, FWB, DynaTek Automation Systems, and Sankyo. The 1GB units we tested from Sankyo and Tandberg Data were quite fast.

If you must back up a lot of data, the drawback of the DC6000 format is not speed or reliability, it is price and capacity. While 1GB and 2GB units are available, they are much more expensive than a DAT unit. The least-expensive 1GB DC6000 drive, the \$1695 Sankyo MT-1000RF, costs about \$400 more than the least-expensive DAT drive (the \$1298 MacDirect NuDesign DAT), and the DAT unit holds about 300MB more data. With built-in data compression, available in DAT but not yet in DC6000, the price-to-capacity gulf between the two formats is even wider.

Some people prefer DC6000 because the format

Better Compression, Higher Capacities Coming

When you're investing in a backup device, make sure that the device will be around for a reasonable amount of time before it inevitably succumbs to the rapid evolution in storage devices.

Although DC2000 drives have been fading as a force in the Mac backup market for the past few years, some new drives show that there's still life left in the format. Teac is currently shipping a 150MB unit; Irwin has a 320MB drive that should be shipping by the time you read this; and a 500MB drive is expected from Everex around the end of the year. Prices for all these drives should be well under \$1000. The combination of low price and medium capacity will place them in direct competition with the Teac data-

cassette units for personal backup.

DC6000 manufacturers have a 2GB drive that should be delivered late this year. The Quarter Inch standards committee is in the last stages of finalizing the 2GB DC6000 standard. But considering the proliferation of low-cost DAT drives, and the relatively high cost (about \$2000) of the high-capacity DC6000 units, it's unlikely that the 2GB DC6000 will make much of an impact in the Mac market.

Helical drive manufacturers are still riding the ascending side of the development curve. Exabyte will be delivering its 8500C mechanism by the time you read this; this will finally bring hardware data compression to the 8mm format. The 8500C adds a compression chip to

the existing 5GB drive, boosting capacity to as much as 10GB. In the next few years, the 8mm format is expected to reach capacities as high as 25GB to 30GB.

The future of DAT is just as bright. Current models hold up to 2GB of data on a 90m tape, and they can further increase capacities via data compression. In 1993, Sony and Hewlett-Packard plan to release units that will use 120m tape, thinner data tracks, and higher-energy media to hold 4GB; data compression will give a practical capacity of 5GB or 6GB. Plans are afoot to double DAT backup capacity every two years after 1993. That schedule may be unrealistically optimistic, but we should see 16GB DAT drives by 1997.

has a long history, and because they believe that DC6000 cartridges are built more solidly than DAT tapes and will be more reliable. But drive manufacturers say that DAT and DC6000 show equivalent failure rates, including both drive mechanisms and cartridges, and that those rates are very low. So unless the cost of DC6000 drives drops, it appears that DAT drives will continue to be a superior choice from the cost viewpoint.

Teac Drives

THERE ARE THREE TEAC DATA CASSETTE DRIVES, holding 60MB, 150MB, and 600MB. Each mechanism uses a different kind of cassette, and the larger-capacity models can read, but not write to, the lower-capacity formats.

The 60MB drive has lost popularity among most manufacturers and has been mostly supplanted for personal backup by the faster 150MB drive. We could find only two vendors that still offer the 60MB drive: CMS Enhancements and Maynard Electronics. Given that you can buy a Teac 150 drive for less than the least-expensive 60MB unit, there's no good reason to buy a 60MB Teac drive anymore.

A Teac 150MB drive is the best entry point for people who have light backup needs. First of all, the drives are inexpensive; the APS Teac 155 from APS, priced at \$499, was the least-costly tape drive we tested. This capacity is a good match for the majority of individual users, whose hard drives rarely exceed 100MB. And the Teac 150 mechanism performed well in our speed tests. Drives based on the Teac 150 are fairly quiet in operation, unlike the noisy QIC drives. Teac 150 drives also enjoy glowing reliability reports. Tapes cost about \$25, which breaks down to about 17 cents per megabyte of storage. Many manufacturers offer Teac 150MB drives, so price and technical support should be your prime buying considerations.

The highest-capacity version of the Teac mechanism holds 600MB. At street prices of well under \$1000, the Teac 600 drive is a good backup choice for individual users with large files, such as graphic artists and desktop publishers. This drive is also well suited to backing up small networks with a file server and a few workstations. The Teac 600 drive is 25 percent faster than the 150MB version. In our speed tests, Teac 600 drives as a group were almost as fast as the DAT units in raw backup speeds, but the DAT drives were superior in finding and retrieving a small number of files from the backup tape.

Helical Drives

IF YOU WANT TO BACK UP A VERY LARGE AMOUNT of data, such as a giant file server or all the hard drives attached to a network, you need a drive that combines huge capacity with relatively fast performance. Helical drives fit the bill. They're called helical because the tape wraps around a drum with spinning read-write heads that trace a diagonal path across the tape. There are two main types of helical drives, 8 millimeter and DAT (digital audiotape). Both are based on tape formats designed for the audio or video markets; 8mm tape was originally designed for camcorders, and DAT mechanisms found their start in digital audiotape recorders. Both 8mm and DAT



SEAN SULLIVAN

The best drives in this year's tape roundup, combining performance and affordability, are (from top to bottom) the APS Compression DAT, the APS Teac 155, FWB's hammerTape 525, and the Vista 600 Tape from Relax Technology.

backup drives have been extensively modified from their origins, however, so you won't be able to use your camcorder for backup. Data backup requires higher reliability than video or audio reproduction, so helical backup drives use error-correction circuitry and higher-quality tape transports than their consumer brethren.

DAT tapes come in two lengths, 60 meters and 90m. Without using data compression, 60m tapes hold 1.3GB of data, and 90m tapes have a capacity of 2GB. DAT drives that incorporate a chip that compresses the data as it is being written to the tape are able to fit more data on a given tape, and these were the fastest of all of the drives we tested. Some manufacturers claim that compression allows them to squeeze as much as 8GB on a 90m tape. While such capacities are theoretically possible, a more realistic figure is between 3GB and 4GB, depending on the kinds of files being compressed. Applications tend to compress poorly, as do sound and font files. Best for compression are text, word processing, and bit-mapped graphics files.

DAT mechanisms are made by several manufacturers but fall into a few types. There are the 1.3GB units, such as the WangDAT 1300 and the Archive

Python. The second generation of drives, represented by mechanisms from Hewlett-Packard, WangTek, and WangDAT, use the 90m tape length, for a capacity of 2GB. The most recent drives, by Archive, Hewlett-Packard, WangDAT, Sony, and WangTek, use the 90m tapes and also include data compression. A new drive mechanism, the 2GB RB100 by Rbyte, should be shipping when you read this. This drive will be the first 3.5-inch DAT unit, so it will be able to fit in smaller, more-

RETROSPECT USUALLY MANAGES TO SQUEEZE THE MAXIMUM PERFORMANCE OUT OF A DRIVE

portable drive enclosures. The RB100 is also touted as having a 30 percent faster data-transfer rate than the current array of DAT drives, but Rbyte could not provide a production unit in time for testing.

The latest trend in DAT units is the DAT stacker; that device can load up to ten DAT tapes into a feeder that supplies the drive unit as necessary. At press time, no stacker units were available, but they should be on sale by the time this article appears.

Prices for DAT drives have remained fairly steady over the past year, with the least-expensive drive, the \$1298 MacDirect NuDesign DAT, creeping only about \$100 under last year's low-price leader. Now that production has ramped up, and large numbers of drives are available, DAT drive prices should decline, albeit slowly.

All of the 8mm drive mechanisms are made by one manufacturer, Exabyte. There are two versions of the 8mm drive, the model 8200 and the model 8500, holding 2.2GB and 5GB, respectively. Because all of the drive mechanisms are the same, your choice of an 8mm drive should be based on price, service, and which manufacturer's software makes the mechanism perform best.

In Macworld Lab testing, the fastest 8mm drive was the MacinStor T5000, a 5GB unit by Storage Dimensions, which uses Retrospect. This is where price comes in; the Storage Dimensions drive lists for \$6460; the other 5GB 8mm drives that provide the same software sell for as little as \$3299. The 8mm drive format currently leads the tape-drive industry in capacity, and is expected to maintain that lead as technologies improve and capacities in all formats increase.

DAT and 8mm tapes are the least-expensive tape media you can buy, either from an absolute standpoint (street prices range from \$13 to \$40) or from a price-per-megabyte standpoint (less than a penny per megabyte). One tip you should remember when buying DAT tape, however: make sure that you get data-grade DAT cartridges. They'll have "DDS" or "Digital Data Storage" stamped on them. While audio-grade tapes will work in your drive, they're less reliable than data-grade tapes, which are verified and certified to have fewer *drop-outs*—unreadable spots on the tape—and other media errors. Data-grade DAT tapes cost a few dollars more, but the extra security is well worth the small additional cost.

Software

AFTER CHOOSING A TAPE FORMAT AND DRIVE mechanism, consider the linchpin of these drives—backup software. Most people regard backing up a hard drive with the same enthusiasm that they view a trip to the dentist; if you look for software that makes backup relatively painless, you'll back up more often.

The dominant backup program is Dantz Development's Retrospect, bundled with the majority of tape drives sold. Retrospect owes its popularity to its completeness; it offers, by far, more features than any other backup program. Retrospect works with virtually every tape mechanism, as well as SyQuest cartridges, floppy disks, and magneto-optical drives. And Retrospect usually manages to squeeze the maximum performance out of a given drive.

Most other backup programs read a block of data from the hard drive, then write it to the tape, then go back to the hard drive for more data. The tape drive has to stop and reposition the tape so that it writes the data onto the tape contiguously. Retrospect uses a technique called SCSI disconnect-reselect, which maximizes speed by enabling the Mac to fetch data from the hard drive as it simultaneously writes data it has received to tape. The tape drive's speed at writing data, not the Macintosh's SCSI port, is therefore the bottleneck. (The method is so successful that Apple has promised to include it in a future revision of system software.) With the exception of FWB, every type of drive we tested was faster using Retrospect than the same mechanism tested with other software. Retrospect's file-selection features offer the most flexible criteria for backup or restore; for example, you can specify all PageMaker files older than three months that have names containing the word *brochure*. You can string together several search criteria using logical operators such as AND and OR to make complex selections. Alternately, you can use one of the program's Selectors, such as Only Documents, or Modified in the last week. Retrospect also provides easy scheduling for automatic, unattended backup.

Retrospect's advanced features can be confusing to use, however. Dantz is working on this problem in Retrospect 2.0, which should ship around the time this article appears.

To back up file servers and workstations over a network, Dantz has Retrospect Remote. This software lets each client choose which files and folders on his or her hard drive will be backed up, or if the drive will be backed up at all. The Retrospect Remote package includes the standard Retrospect program. Some manufacturers bundle the single-user version of Retrospect; others include a three-user pack of Retrospect Remote. Dantz sells five- and ten-user packs of Retrospect Remote software.

Some manufacturers prefer to write their own software. Tecmar bundles the excellent QT Backup with its drives. I like this software because it has two interface modes. For beginners there is an icon-driven interface that walks you through the backup process. For advanced users, QT Backup provides a complete file-selection capability, automatic backups, and the easiest network-backup software available. FWB provides its own software, as well as Retrospect, with its tape drives. The FWB software was faster

All times are in seconds.


Drives over 500MB


Color Key


 Fastest

Percent slower than fastest

 Up to 10%

 11%–20%

 21%–29%

 30% or more

The drives are listed from best overall performance (top) to worst overall performance (bottom) in each capacity range, based on backup, retrieve, and restore application tests. To determine rankings, we indexed overall performance numbers against the fastest drives in each category—the FWB hammerDAT 5000 and the APS Teac 155, which received 1.00 index scores, listed to the left of each product. Performance among the top several small drives was, for practical purposes, identical. Only when the index number is calculated to three or more decimal places do differences become visible; so the top four drives all received 1.00 index scores.

NA = Verification not offered by software supplied with drive.

Mechanism codes are in parentheses following product names.

A = Archive; E = Exabyte;
HP = Hewlett-Packard; R = Rbyte;
SA = Sanyo; SO = Sony; T = Teac;
TB = Tandberg; TT = Transitional Technology; WD = WangDAT;
WT = WangTek.

Overall Fastest	1.00	FWB hammerDAT 5000 (WD)(using FWB software)
test	0.96	APS Compression DAT (A)
	0.96	DynaTek DAT 4.0 (HP)
	0.93	Tecmar QT-525 (WT)
	0.92	FWB hammerDAT 5000 (WD)(using Retrospect)
The best overall worst overall in each capa- city, re- covery tests. We indexed members against in category— 5000 and the received 1.00 to the left of each among the top for practical ity when the ed to three do differ- to the top four index scores. ffered by drive. parentheses s. e; R = Rbyte; y; T = Teac; transitional gDAT;	0.92	Storage Dimensions MacinStor T5000 (E)
	0.89	Memory Bank Memorytape MT30 (A)
	0.85	CMS Enhancements Platinum DAT 2600 (WD)
	0.83	Legacy Storage Systems 2000S (E)
	0.82	Relax Technology Vista 2.0 GB DAT (A)
	0.79	FWB hammerTape 525 (WT)
	0.79	Transitional Technology CTS-4 (TT)
	0.79	Tandberg Data Panther 1000 (TB)
	0.76	DynaTek QIC 525 (TB)
	0.76	Liberty Systems Liberty 70 DAT (A)
	0.75	APS DAT (A)
	0.75	La Cie Cirrus DAT (A)
	0.75	Hewlett-Packard 35470A (HP)
	0.75	Micronet Technology Micro/Tape CPKD-2000 (A)
	0.75	DynaTek DAT 2.0 (HP)
	0.75	Storage Dimensions MacinStor T2000 (HP)
	0.75	Micronet Technology Micro/Tape CPKT-600 (T)
	0.75	SunStor Systems Sun MT-525SC (SA)
	0.74	Optima Technology MiniPak 8000DAT (HP)
	0.73	Procom Technology MDAT 1300/M (WD)
	0.72	Hard Drives International PowerDrive 2.0 DAT (WD)
	0.71	Relax Technology Vista Tape 2.2 GB (E)
	0.70	Transitional Technology CTS-8501 (TT)
	0.69	Optima Technology MiniPak 2000 DAT (HP)
	0.68	Legacy Storage Systems 2200D (WT)
	0.68	CMS Enhancements Platinum DAT 1300 (WD)
	0.68	Maynard Electronics MaxStream 2200HS (E)
	0.67	Procom Technology PMT600/M (T)
0.63	Optima Technology MiniPak 600T (T)	
0.62	CMS Enhancements Platinum PST-600-SS (T)	
Overall Slowest	0.61	Relax Technology Vista 600 Tape (T)

Small Backup (66.6MB, 1317 files)	Small Backup (with verifications)	Restore (80MB)	Retrieve (3.9MB)	Backup (300MB)	Restore (300MB)
375.5	NA	381.8	58.5	1217	1265
356.7	753	371.8	173.6	1212	1278
343.6	781	373.1	167.9	1227	1276
512.9	924	425.2	30.9	1603	1591
370.9	813	390.3	180.4	1252	1315
448.8	907	378.2	136.6	1264	1098
358.2	716	623.9	160.0	1177	1416
443.0	NA	376.6	332.7	1328	1242
433.7	889	408.3	234.9	1412	1416
555.1	NA	513.2	36.5	1799	1758
420.2	900	427.4	276.1	1594	1606
545.0	NA	551.7	39.6	1786	1828
412.8	845	435.1	240.0	1586	1813
432.7	931	426.8	332.4	1603	1823
461.5	876	448.5	264.5	1676	1694
460.7	881	453.9	265.1	1667	1693
459.5	881	453.0	265.4	1677	1693
454.5	914	437.9	256.4	1700	1702
460.3	875	458.7	263.8	1679	1692
453.5	914	440.0	256.3	1715	1697
455.1	904	445.7	256.3	1735	1697
442.4	1219	495.3	231.0	1433	1481
447.2	NA	439.5	237.4	1585	1603
787.9	NA	674.5	36.0	1711	1768
481.0	917	469.7	276.7	1739	1751
482.4	918	470.2	275.3	1742	1750
525.3	NA	563.2	228.2	1414	1492
615.0	NA	484.1	176.7	1475	1627
741.8	NA	759.0	36.7	1939	2053
544.7	988	481.3	278.8	1968	1719
484.1	NA	481.8	421.5	1695	1712
515.2	1141	700.8	344.7	1337	1632
526.3	1279	557.9	278.9	1587	1620
820.2	NA	750.1	67.4	1711	1768
650.0	NA	685.4	238.4	1467	1728
532.9	NA	665.7	299.0	1618	1983

Drives up to 500MB

Overall Fastest	1.00	APS Teac 155 (T)
	1.00	Optima Technology MiniPak 150T (T)
	1.00	La Cie Cirrus Tape 150 (T)
	1.00	Procom Technology PMT150/M (T)
	0.99	Liberty Systems 160T (T)
	0.98	CMS Enhancements TS-150-E (T)
	0.85	Hard Drives International PowerDrive 150T (SA)
	0.74	SunStor Systems Sun MT-150SC (SA)
	0.70	Relax Technology Vista 160 Tape (T)
0.63	Maynard Electronics MaxStream 250Q (A)	
Overall Slowest	0.47	Tulin Half Shell 155 Tape (T)

Small Backup (66.6MB, 1317 files)	Small Backup (with verifications)	Restore (80MB)	Retrieve (3.9MB)
634.3	1389	666.8	238.2
645.8	1366	668.1	239.2
646.0	1382	672.0	237.4
639.0	1376	678.6	238.8
642.9	1414	675.3	243.0
671.6	NA	667.4	393.0
776.4	NA	745.1	441.1
781.9	NA	756.7	449.5
776.6	NA	848.6	478.6
771.9	1814	997.7	929.0
883.4	2330	1796.4	1289.0

TALE OF THE TAPE

Company	Tape Formats Offered (Mechanism Manufacturer)					Software Manufacturer	A/UX Compatible	Warranty (in years)	Tech-Support Rating
	DC2000	DC6000	Teac	DAT	8mm				
APS			Teac	Archive		Dantz	no	1	excellent
Blackhole Technology		Tandberg		WangDAT	Exabyte	Blackhole & Dantz	no	1	not tested
Club Mac			Teac	WangDAT or Hewlett-Packard	Exabyte	Dantz	yes	1	not tested
CMS Enhancements			Teac	WangDAT		Surf City	yes	1	very good
Contemporary Cybernetics Group		Sankyo or Tandberg			Exabyte	CCG	yes	1	not tested
DynaTek Automation Systems		Tandberg		Hewlett-Packard	Exabyte	Dantz	no	1	very good
Fifth Generation Systems	WangTek					Fifth Generation	no	1	not tested
FWB		WangTek		WangDAT		FWB & Dantz	yes	1	good
Hard Drives International		Sankyo		WangDAT		Surf City	yes	1	poor
Hewlett-Packard				Hewlett-Packard		Dantz	yes	1	dealer support only
La Cie			Teac	Archive		Dantz	yes	1	very good
Legacy Storage Systems		WangTek		WangTek	Exabyte	Dantz	yes	1	very good
Liberty Systems			Teac	Archive		Centa & Dantz	yes	1	satisfactory
MacDirect				WangTek		Dantz	yes	1	not tested
MacProducts USA		WangTek		WangDAT or Rbyte	Exabyte	NovaMac & Dantz	yes	2	not tested
Maynard Electronics		Archive	Teac		Exabyte	Maynard	no	1	unsatisfactory
Memory Bank				Archive	Exabyte	Memory Bank	yes	1	excellent
MicroNet Technology		Tandberg	Teac	Sony		Dantz	no	1	good
Microtech International			Teac	WangDAT		Dantz	yes	2	not tested
Mirror Technologies				Archive		Diversified I/O	no	1	not tested
Novastor Corporation		Tandberg		Hewlett-Packard	Exabyte	Surf City	no	1	not tested
Optima Technology Corporation		Tandberg	Teac	Hewlett-Packard		Dantz	yes	1	very good
PCPC				Archive	Exabyte	PCPC	yes	2	not tested
PLI				WangDAT		Dantz	yes	1	not tested
Procom Technology			Teac	WangDAT		Dantz	yes	1	excellent
Relax Technology			Teac	Archive	Exabyte	Diversified I/O	yes	1	good
Sankyo		Sankyo				Dantz	no	2	satisfactory
Storage Dimensions				Hewlett-Packard	Exabyte	Dantz	no	1	excellent
SunStor Systems		Sankyo				Surf City	no	2	not tested
Tallgrass Technologies Corporation		Archive or Tandberg		Archive		Dantz	no	2	not tested
Tandberg Data		Tandberg				Dantz	yes	1	poor
Tecmar		WangTek		WangDAT	Exabyte	Tecmar	yes	2	satisfactory
Third Wave Computing				Hewlett-Packard		Dantz	no	5	not tested
Transitional Technology				WangDAT	Exabyte	TTI	no	1	very good
Tulin Corporation	Teac	Archive or WangTek	Teac	Hewlett-Packard or WangTek	Exabyte	*	yes	1	not tested

* No bundled software; provides Fifth Generation Systems' Fastback Tape at extra cost.

than Retrospect in our tests, and offers features that Retrospect does not, such as *mirror-image backups*—copying every sector of a hard drive, including empty sectors, to create an exact, one-to-one correspondence between disk and tape. Mirror-image backups are useful for copying damaged hard drives before attempting to fix them with disk-recovery software. Most backup software uses the space-efficient file-by-file backup method, which copies each file independently.

A new package bundled with drives from CMS, Hard Drives International, and Novastor is Surf City Software's SurfGuard. This easy-to-use program steps you through the entire backup. But SurfGuard could use better unattended backup op-

tions; you can set a future time for the backup to commence, but not a future date.

Optima Technology Corporation has taken an interesting approach to tape software with its DeskTape. This cdev (control panel for System 7) allows the tape contents to appear on the Mac desktop as though the tape were a hard drive. You back up to, and restore from, the tape by dragging files to or from the tape volume in the Finder. The great advantage to this approach is that there's nothing new for the user to learn in order to back up to tape; it's just like any other copy operation. The price for this convenience, however, is sluggish performance. Since tape is a sequential medium, you must wait until the tape fast-forwards or rewinds to the appropriate spot to

read or write a file. Add to this the well-known slowness of the System 7 Finder in copying, and it's no surprise that backups with DeskTape took much longer than with other software. But sometimes the easier, slower solution is more appropriate. If, for example, you wish inexperienced users to back up regularly, the Finder copying method works better. Another disadvantage of Optima's software—it's the only backup software we looked at that does not support timed backup. Optima also sells Retrospect with its drives as an extra-cost option, but our tests are based solely on DeskTape.

Picking the Right Drive

IF YOU'VE ONLY GOT A 40MB HARD DRIVE, DON'T bother with a tape drive; back up onto floppy disks with a program like Dantz's DiskFit Pro or Fifth Generation Systems' Fastback II. With these programs, floppy-disk backup is easy, and more cost-effective than tape. You can also use these programs to back up to a removable-cartridge or rewritable-optical drive. Those technologies fill dual roles as backup devices and as expandable storage.

If you are backing up more than 40MB, the backup task falls into three classes, which are determined by the amount of data that you need to protect. For personal backup, where you need to back up less than 150MB of data, go with a drive based on the Teac 150MB mechanism. Those drives are faster, quieter, and much less expensive than the 150MB/250MB DC6000 units. I like the Teac 150MB drives from APS, Optima, and La Cie: the APS for its low price; the Optima because of the DeskTape software option, and the La Cie



GARY MOSS

David Soloman of Overwear learned the value of tape backup when all his computers were stolen during the Los Angeles riots earlier this year. His athletic-clothing company was up and running only two weeks later, thanks to a current backup of account data.

for its space-saving upright design.

Midrange backup, from 150MB up to 600MB, is the province of the 525MB DC6000 drive and the Teac 600 units. Either of these drives will do the job admirably. The 525MB DC6000 units are much faster; the Teac 600 drives are generally hundreds of dollars cheaper. If your wallet has a bigger vote than your stopwatch, check out the Teac 600 drives from Club Mac, Relax Technology, or Procom Technology. If backup speed is paramount, the 525MB DC6000 drives from FWB, DynaTek, Optima, and Sankyo are good picks.

Network backup needs high capacity, and for this, look to a DAT or 8mm drive. If you are on a tight budget (under \$1400), look to a plain 1.3GB DAT drive from APS or Club Mac. Otherwise, get a compression DAT from APS or Third Wave, or one based on the fast Hewlett-Packard mechanism from DynaTek or Club Mac. Those drives will serve you well up to about 4GB; if you need more backup room, you'll have to turn to a 5GB 8mm drive from Relax Technology, Transitional Technology, or Legacy Storage Systems.

The vast array of tape drives on the market show strong enough similarity that your buying decision should be based largely on price, support, and bundled software, rather than performance and features. It's refreshing to know that in at least one peripheral-product area the choices are relatively straightforward. **m**

See *Where to Buy* for contact information.

TOM NEGRINO is a *Macworld* contributing editor.

Macworld Lab testing supervised by MARK HURLOW.

MW

EDITORS' CHOICE

Personal Backup (up to 150MB)

APS Teac 155 This Teac 150 drive is a great deal: it's fast, inexpensive, and comes with Retrospect backup software, and the company provides fast service and superb technical support. **Company:** APS. **List price:** \$499.

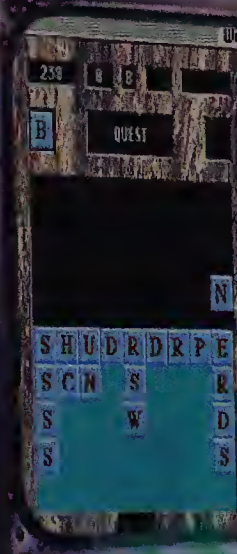
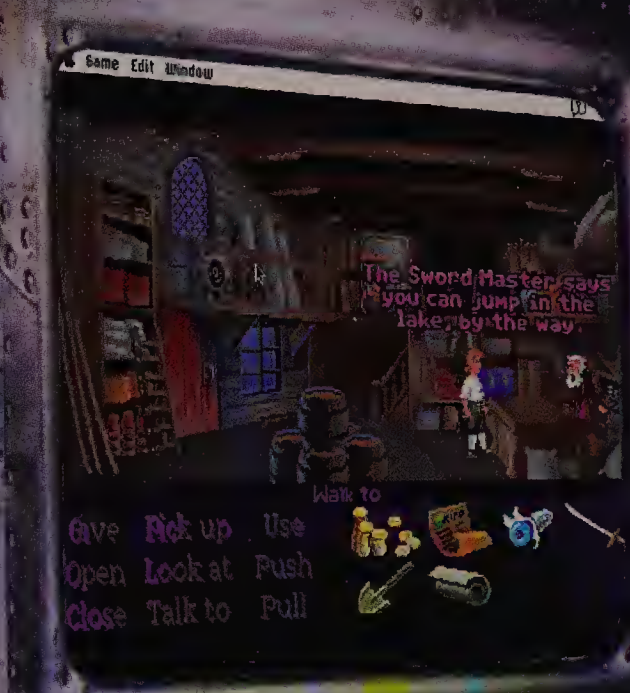
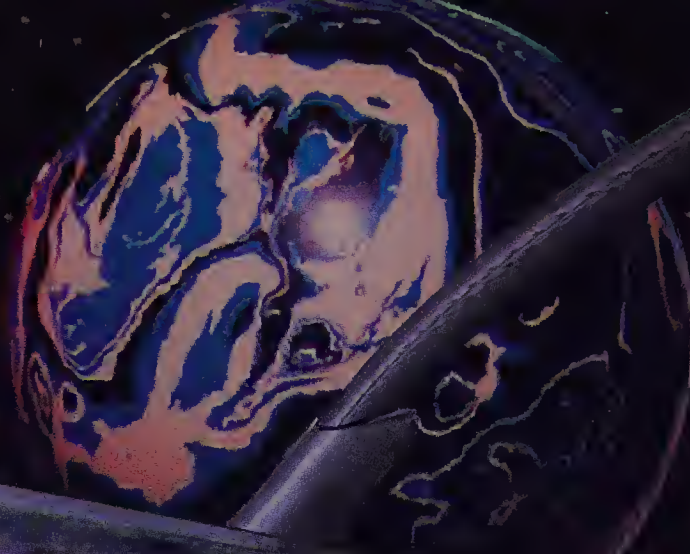
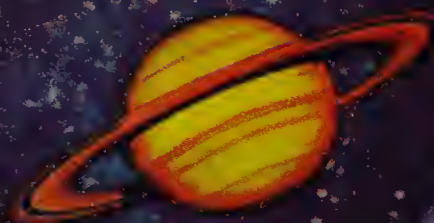
Midrange Backup (150MB to 600MB)

Vista 600 Tape For midrange backup on a budget, this Teac 600 drive is the lowest-priced entry we tested. While it was also the slowest drive in the over-500MB category, you can dramatically boost the drive's performance by buying Retrospect instead of using the drive's bundled SoftBackup, and still spend under \$950. **Company:** Relax Technology. **List price:** \$779.

hammerTape 525 The drive comes with Retrospect and FWB's own backup software, and the unit was the second-fastest DC6000 drive we tested. A low price brings it to the front of the pack. **Company:** FWB. **List price:** \$1469.

High-Capacity Backup (1GB and beyond)

APS Compression DAT Hardware data compression, close to top speed, great technical support, and low price—a rare and welcome combination. **Company:** APS. **List price:** \$1699.



PETERS



THE 1992 MACINTOSH GAME HALL OF FAME



THINGS HAVE BEEN BUSY THIS year at the Macintosh Game Hall of Fame, located in beautiful (if somewhat desolate) downtown Pittsfield, Massachusetts. The bus tours keep coming, discharging tourists who, to be honest, arrive with some skepticism—and who are also a bit tired from touring the Norman Rockwell Museum that morning. But soon they're gawking at the World's Longest Mouse Cord, intently poring over the diorama portraying the history of Tetris, and taking in

BY STEVEN LEVY

ILLUSTRATION BY DAVID PETERS



the IMAX film of antebellum life in SimCity. By closing time, we can't pry them out. Just the other day

we came across a codger sitting in a corner we'd forgotten, furiously playing Wizardry at a dusty Fat Mac. Seems he'd been there for two weeks, living on Cheetos tossed to him by passersby who mistook him for an exhibit.

In fact, it's been a good year in all sorts of ways. We're finally seeing the bounty resulting from Apple's lower prices on color Macs and a long-overdue effort in its Cupertino headquarters to encourage development of entertainment software. (Would you believe Apple now has a Game Evangelist?) While not exactly a flood, the stream of games has been refreshingly steady. The result is a particularly competitive field for inclusion in the Valhalla of computer games, The Macintosh Game Hall of Fame.

Since the contestants are on tenterhooks waiting for the announcements (ever seen a tenterhook? neither have we), we'll note the rules and cut to the chase. Bribery won't get you into the Mac Game Hall of Fame, but true excellence will. The Hall's Curator and Chief Selector, yours truly, makes final determinations after an informal nominating panel of wise elders (and youngers) suggests con-

tenders. While the categories are fairly constant, the Curator reserves the right to shoot with a little English—after all, sometimes a strategy game is also an arcade game, and the lines between adventure and role-playing are rather fuzzy these days. The idea is to allow the very best games to find their way into the Hall's hallowed chambers.

And here are those very best games—the Class of 1992.

BEST BRAIN GAME: Wordtris

Spectrum HoloByte. Requires: Mac Plus; 1MB of RAM; 2MB of RAM and hard drive for color; System 6.0.3. \$49.95.

You'd think that the clever Muscovites who first concocted the classic Tetris would have milked the last buck from the concept by now. Things reached a low point with Facetris, which dropped the literacy level of the series to that of Mr. Potato(e) Head. As it turns out, all that was merely a prelude to this 'tris, which takes the brilliant step of merging the familiar dropping-tile format to the wonderful world of words. Only legal reasons, I guess, prevented this game from being dubbed Scrabble-Tris.

As with the first iteration of the series, what appears to be a simple game winds up to be a maddeningly intricate challenge to one's cerebral powers. All that's re-

quired is to shuttle the dropping letters in one of several columns on the playing field so that they form words. Yeah, *right*—just like all that's required to get Russia on its feet is to install capitalism.

To really rack up big scores on Wordtris, you have to think far in advance; you've got to form words horizontally and vertically, in crossword fashion. Complicating things even more is a strange twist that has your first row of letter-tiles floating in a pool, then sinking as more tiles pile on. Then there are wild-card tiles (you pick the letter), bonus blocks (you get extra points if you form a word with them immediately), and magic words that you're dared to assemble.

Do you want more? There are several multiplayer modes where you can play competitively or cooperatively, either on the same computer or in parallel on a network.

Unfortunately, the playing field of Wordtris still displays the irrelevant tableaux of an archaic Soviet Union. And it still plays the kind of music only a Ukrainian peasant could love. So just turn off the sounds—Wordtris speaks for itself, louder than words.

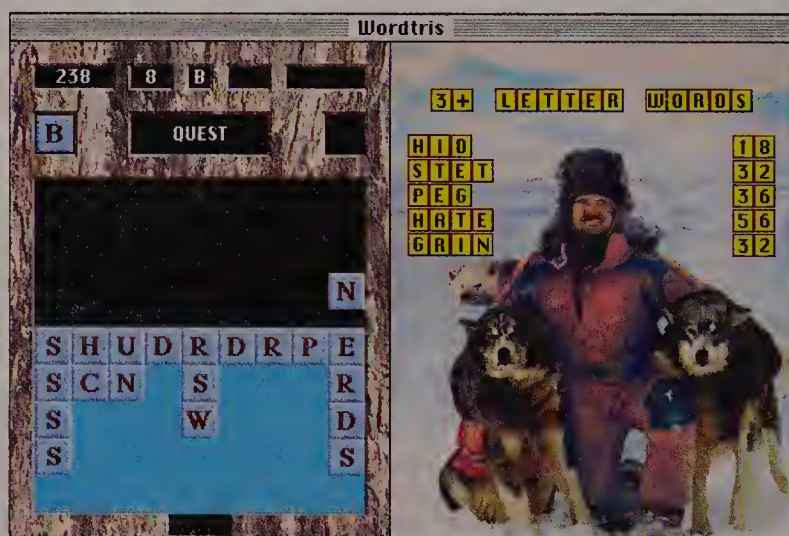
BEST ARCADE GAME: Prince of Persia

Brøderbund Software. Requires: Mac Plus; 2MB of RAM (2.5MB with System 7 in black and white, 4MB with System 7 in color); hard drive; System 6.0.2 (6.0.5 for color). \$49.95.

Scheherezade herself would be hard put to describe the sublime artistry with which one must negotiate the cavernous Arabian palace in Prince of Persia. So we'll keep it simple—if that Mac classic, Dark Castle, grew up to become a full-color, martial-arts extravaganza, this is what it would look like. The plot, as it were, requires you to control a suitor to the sultan's daughter, who is held prisoner by the evil Grand Vizier. You view the forlorn maiden in an opening screen and get glimpses of her as you ascend each level. But forget about a quick reunion; before you meet her, you not only have to perform feats of dexterity—sword fighting, jumping, and climbing—you also have to solve the puzzling mysteries of how to get from point A to point B when it seems impossible to do so. It will take you 1001 nights to complete it, but oh, what nights they'll be.

The best thing about Prince of Persia is the attention to detail. The animation is superb—not only when your alter ego runs and jumps, but also during more complex maneuvers such as hanging on to ledges. Particular care was taken in the depiction of death scenes. Children's advisory: Your demise is often accompanied

Wordplay Forget about that Slav with the huskies; the real action is on the left, where Wordtris is played. And we are just about to form the word *nerds*.



Sultans and Swords Your turbaned stand-in gloats over a vanquished henchman of the evil Grand Vizier. To win Prince of Persia, however, you'll have to out-sword many more turbaned opponents.



by gory graphics and a blood-curdling death rattle.

The worst thing about the game is its copy protection. Not content to force you to count words and letters in the manual before you can restart, Prince of Persia idiotically forces you to play a simplified version of the game itself. What a waste of time. We here at the Game Hall of Fame play Prince of Persia much less than we otherwise would, because just the thought of that mindless routine makes us return to our word processors.

BEST SIMULATION GAME: SimAnt

Maxis. Requires: Mac Plus; 1MB of RAM; 2MB of RAM for color (2.5MB for System 7 in color); System 6.0.2. \$59.95.

Master simulator Will Wright could have gone only two ways after he followed up his brilliant SimCity with the ambitious SimEarth—bigger or smaller. Eschewing SimUniverse, he wisely took the micro route, allowing us to do something that we ordinarily do only during business hours—participate as selfless drone workers in a colony of selfless workers. In other words, to become an ant.

This is more fun than you'd expect. For one thing, a player of SimAnt has much more control than your average worker ant—using any of about a zillion commands and gleaning information from a hundred or so screens and charts, one can actually become the secret commander of a colony of social insects while inhabiting the body of a single drone or soldier. You'll learn that being an ant is no picnic—besides coping with competing red ants, predatory spiders, and hungry larvae to feed, you have to worry about being pureed by a lawn mower.

A limited version of the game pits your colony of black ants against a hill of red guys. It's great stuff—military strategy in miniature. For more thrills, play the full game, in which you get to engineer an attack on a house of humans!

Like all of Maxis's simulation games, SimAnt is grounded in real life—the bibliography in the wonderful manual refers to respected tomes by the likes of legendary entomologist E. O. Wilson. But instead of cracking the books to learn about ants, or following the little buggers as they meander along the sidewalk, a student of insect behavior might best spend time *being* an ant. And the way to do this is to play SimAnt.

BEST SIMULATION GAME, AIRBORNE DIVISION: Hellcats Over the Pacific

Graphic Simulations. Requires: Mac LC; 2MB of RAM. \$69.95.

Even those who feel sated by the present abundance of flying simulations



on the Mac would do well to sign up for a tour of duty in the World War II-torn South Seas. The controls of the simulated Navy F6F itself aren't as intricate as, say, the controls in Spectrum HoloByte's Falcon, and the real-time experience of flying doesn't approach the verisimilitude of Microsoft Flight Simulator. But the game has a gritty authenticity that's heightened by the most stunning graphics yet seen on a program of this sort

The whole point of Hellcats has nothing to do with attempting some yuppie mastery of a flying machine; the idea is to attempt to replicate the very experience of a fighter pilot in the Pacific theater. The superior graphics add to the experience of trying to complete the half-dozen mis-

sions offered to Hellcats. The heart thumping begins early on; your view from the cockpit is an extremely cool replication of the real world, and it accelerates as you fend off fighters and begin your dive-bombing runs. Especially nifty is the view you get when ejecting yourself from the plane—a panoramic vista that more than softens the shame of bailing out.

Included are the requisite documents about the air combat, a technical manual, a big map of the Solomon Islands, and fewer hints than you'd like about actually flying the thing. But you pick up the right stuff as you blitz targets and win promotions, all at the expense of productivity and quality time with family. But hey, that's life during wartime.

Mound, Sweet Mound SimAnt gives you several views of your anthills as well as all sorts of indicators telling you the status of your colony. It's the neatest thing on six legs.

Bombs Away A view from the cockpit in Hellcats Over the Pacific as you dive-bomb a Japanese aircraft carrier. In a split second you'll drop bombs, level off, and head for the airfield. If you sink the ship, you're due for a promotion.

Tanks for the Memories With Spectre, you get a barren battlefield, high-tech tanks, perpetual attacks from an army of opponents, and certain death awaiting you at any moment—now *that's* entertainment.



BEST NETWORK GAME:

Spectre

Velocity Development. Requires: Mac Plus; System 6.0.3. Recommended: 2MB of RAM for color or sound. Single-user version \$59.95; LAN version with three copies \$99.95.

Played solo, Spectre is a reasonably addictive shoot-'em-up, most notable for shifting the player's viewpoint to inside the futuristic tank from which other futuristic tanks are targeted and destroyed. This takes place in a sparse cyberlandscape where only polygons can hear you scream.

On a network, Spectre is something else. Instead of taking on a herd of computer-operated opponents, you're pitted against real human beings in struggles to the death. Sure, the concept is stale—as are the other variations like capture-the-flag—but the execution is wonderful. So wonderful, in fact, that Spectre qualifies as the most marvelous multiplayer Mac game to date.

When a gang of experienced Spectre jockeys gather, the play is fast and furious. The game's controls become second nature; as one learns to survive, he or she develops a bag of tricks—certain evasive

movements, particular strategies for placing oneself behind an opponent, unspoken yet understood behaviors so that two can gang up on a single opponent. These individual quirks and peccadilloes emerge in such a way that the menacing tanks you see on your screen actually take on the characteristics of your human foes.

Those with Quadras have an advantage over those with mere Mac II's. The biggest edge, though, goes to those who have spent hundreds of hours enmeshed in the Spectre battlefield and have developed the requisite skills to kill without being killed too often. The fact that an otherwise intelligent person will actually spend that kind of time on Spectre is reason enough to qualify it as a Hall of Fame member.

BEST SPORTS GAME: Tristan

Amtex Software Corporation. Requires: Mac II with 4MB of RAM, or Mac LC with 2MB of RAM; color monitor supporting 256 colors; System 6.0.7. \$59.95.

Testosterone-heads might object to our classifying pinball machines as a sport—but here at the Game Hall of Fame, we take our flippers and bumpers at least as seriously as the icons of the other indoor sports of our misspent youth

(Ping-Pong, pool, Trust Me, and so on). And when it comes to replicating the *feel* of an actual sport, the computer pinball machine called Tristan is unmatched.

Some might complain that Tristan, unlike the more versatile classic, Pinball Construction Kit, offers but one table. But that's why it's great. It reminds us of the days when you frequented just one candy store with a single pinball machine. You got to know the game's intricacies and the subtle stratagems required to win free games, thereby frustrating the geeky supplicants whose nickels gathered dust on the glass. Blissfully, Tristan has as many tricks and complexities as any Bally or Gottlieb—bonuses, rollovers, extra balls, and that special time when two balls are in play simultaneously and you can really rack up points.

When we got wrapped up in Tristan, it Felt Like The First Time, and we knew we were playing real pinball when the Game Over lights flashed; instinctively we hit the keys to play again. And again. And while our real lives impatiently waited—spouse, kid, career, Summer Olympics on TV—we played yet again. We might not accumulate the millions of points necessary to win the Tristan contest sponsored by Amtex (to enter, fax your high scores to the company by December 31 at 613/967-7902), but the reassurance is there—we still play a mean pinball.

Flippers and Bumpers No nickels needed; all that's required to play this pinball game, Tristan, are a computer, some manual dexterity, and a complete willingness to set aside career and family in favor of racking up points.



Pièce de Résistance Allied forces mop up German resistance in V for Victory (D-Day Utah Beach). Highlighted here is the outcome of one of several skirmishes won by our troops; the Americans (represented by green squares) are well on their way to neutralizing the opposition (the Germans, in gray squares).



BEST STRATEGY GAME: V for Victory (D-Day Utah Beach)

Three Sixty. Requires: Mac Plus. \$59.95.

War-strategy games are a world unto themselves and often fall into two categories: those simple enough to appeal to casual gamers and those sufficiently Byzantine to please the pedantic legion of desktop generals who take this stuff seriously. The V for Victory battle set is different. While simple enough to intrigue novices from the get-go, its depth rivals that of the most elaborate war game.

As a result, V for Victory is kind of a Trojan horse for battle-strategy gaming. Novices will have no trouble following the clearly written tutorial; they're guided through the first of several scenarios, which involves mopping up opposition after the 1944 invasion of Normandy—and it's not hard at all. Moving around the units of infantry, tanks, and engineers is simple; so is firing artillery and launching air support. Novices will have so much fun that it'll be a while before they realize they're not doing very well—it takes too long to rid the land of Nazi troops. The solution is to hit the manuals and learn more about the game, the war, and military strategy—these are things one needs to know to win that victorious V.

Everything imaginable about the post-D-Day battles is included here, from the proper divisions that duked it out in France to realistic weather conditions. Using your mouse, you'll uncover endless layers of information, all of which will affect the outcome of the campaign. How tired are your troops? Where's your anti-tank unit? And when you get good enough to win using the historical facts of November 1944 (winning consists of vanquishing the Germans in the most efficient and devastating manner), you can raise the crossbar and rewrite history—giving up Allied air supremacy, for instance. The game could keep you going for a year—even longer if you decide to keep your day job.

The only problem is that the game—at least our copy—tends to crash the system at untimely junctures. Solution: Save the game after every turn. At least Three Sixty doesn't stick us with off-disk copy protection.

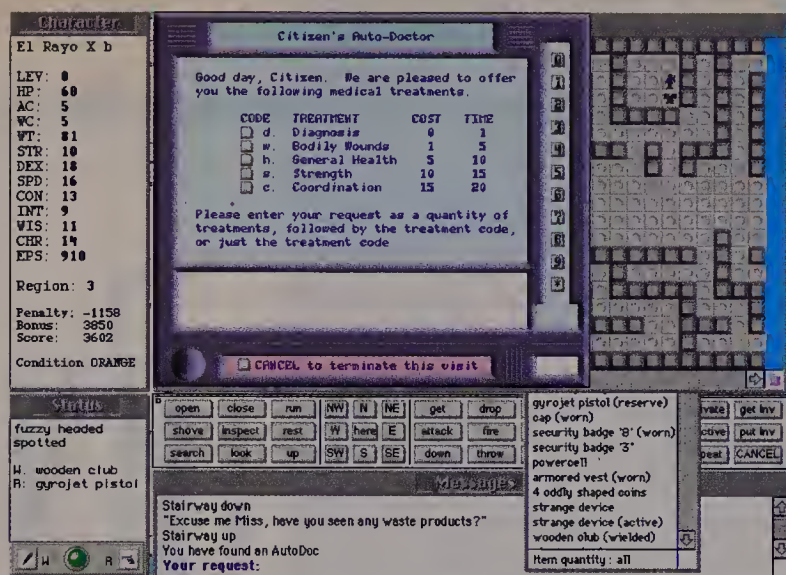
BEST ROLE-PLAYING GAME: Mission Thunderbolt

Casady & Greene. Requires: Mac Plus; 2MB of RAM; 7.2MB of hard drive space. \$59.95.

You'd think that after playing computer games for more than a decade, we'd have gotten tired of hanging out in dungeons; crawling into caves; wielding bizarre weapons; and fighting poison spiders, wild dogs, and slimy things. Well, we have. Then something like Mission Thunderbolt comes along, and it's back to the caverns for one more fling.

To be persnickety about it, Mission Thunderbolt takes place not in a dungeon but in an underground research lab where alien life-forms, making the most of a nuclear holocaust, are assembling an antimatter bomb to finish off life on Earth. (Where do they get this stuff?) Fans of Wizardry, Rogue, and other role-playing classics will recognize the essentials: explore the hell out of the place, gather weapons, don armor, try out pills, gain experience and health points, and get to the bottom of things.

Unlike many of its cousins in fantasy gaming, Thunderbolt doesn't go out of its way to make things difficult for you. (The exception is the installation process—in swapping seven disks in and out of your machine you get more wrist exercise than you would playing maracas in a mambo band.) There's no time clock working between moves, so you don't feel as if you're playing with the sword of Damocles hanging over you. All your actions are easily performed by the mouse. If you want to return somewhere in the maze, you simply click on the place and your alter ego



scoots over there. If you're carrying too much money, you can put it in a bank. If you're low on health points, you can buy some vitality at a medical center.

Not that finishing Mission Thunderbolt is a breeze. It gets harder as it goes—you haven't known misery till you've been bitten by a fangwing—and sometimes you actually need to utilize good old-fashioned cognition. What a concept. Those in possession of the sort of skewed mind that takes to the arcane fantasies of role-playing games will happily devote hundreds of hours to executing Mission Thunderbolt, while their friends and relatives send out search parties.

BEST ADVENTURE GAME: The Secret of Monkey Island

LucasArts Games. Requires: Mac LC; 2MB of RAM; color monitor; hard drive; System 6.0.7. \$59.95.

With little fanfare, the adventure-game factory at LucasArts has been churning out the best interactive graphic narratives in the business. The Secret of Monkey Island is the best yet. While the pirate theme is far from original, Monkey Island makes it fresh by casting Guybrush Threepwood as your doppelgänger, a buccaneer wannabe who must accomplish three tasks in order to join the ranks of seafaring swine. Though the missions can be tackled in any order, interactivity is

subtly limited so as not to interfere with the firm narrative structure that gives the game a backbone that's not often found in adventures. The game is also quite forgiving—movements and actions are easily executed, and there's none of that instant-death stuff for opening the wrong door. Though your puzzle-solving ability is often tested, Monkey Island unfolds more like a movie than a classic computer adventure.

Fortunately, these guys know how to make a good movie. The graphics are compelling, the original music adds nice atmosphere, and the relatively long set-pieces of dialogue are so witty that what could have been a drag to sit through actually becomes a highlight of the game. Through these snappy conversations, the denizens of Monkey Island assume the same memorable appeal as character actors in vivid B-flicks—especially when, on your second and third encounters with them, they “remember” their previous exchanges with you and follow up on jokes that they set up earlier. It's good screenwriting—and state-of-the-art game writing. **m**

See *Where to Buy* for contact information.

STEVEN LEVY, *Macworld* columnist and world-renowned gamer, has tended the Macintosh Game Hall of Fame since its inception in 1986.

Heal Thyself The role-playing character in Mission Thunderbolt has gathered quite a bag of goodies—and quite a few maladies from getting bitten by various monsters. Maybe he can get fixed up by this Auto-Doctor, which is sort of a do-it-yourself clinic.

Monkeying Around One of the amusing, yet not terribly helpful, people you meet on Monkey Island is the storekeeper. He will, however, sell you shovels, swords, and breath mints.



You're convinced aliens walk among us, but you keep hearing people talk as if this were just fiction. So you decide to write an op-ed piece for the local newspaper citing sightings and other evidence that prove you're right. You drop in to the local library to get your facts straight and then return home to pound out an article on your trusty Underwood typewriter. When done, you call the newspaper to find out how to submit it.

Without thinking about it, you have used the library, the typewriter, and the telephone to extend your innate capabilities. The library provides access to large amounts of information, the typewriter puts your words on paper, and the telephone gives you access to people not nearby. Similarly, a basic computer system extends its capabilities with various peripheral devices. For example, a high-capacity hard drive stores information, a printer puts text and graphics on paper, and a communications network puts the computer in touch with other computers. (The basic system is detailed in "Your Computer Revealed: Inside the System," *Macworld*, November 1992.)

Where the Files Are You can't possibly cram a library full of information inside your head, and neither can a computer hold all the information it works with in its system memory. People rely on books to augment what they remember, and computers similarly store volumes of information on hard drives, CD ROM drives, and other mass-storage devices. When you need a book, you can look through a library's card catalog, jot down the call number of the book you want, find that number in the stacks, take the book off the shelf, and begin reading. The computer goes through a similar process to access a file on disk (see "Retrieving Stored Information").

If you need a book from a library whose stacks are closed to the public, you give the call number to a librarian, who gets the book for you. On a Macintosh, file access begins when you double-click a file icon. The Finder makes a note of the file's location—which disk it's on and which folders to go through to reach the file. Then the Finder gives the location to the File Manager (which is part of the operating system software that resides in ROM) and asks the File Manager to get the file from disk.

Using the disk, folder, and file names supplied by the Finder, the File Manager finds the entry for your file in the disk's catalog. Catalogs for all disks except 400K floppies are organized hierarchically, like a family tree. The disk itself is at the root of this hierarchy. At the next level are the folders and files that you would see if you opened the disk icon. If you opened those folders you would see the folders and files at the next level, and so on. Imagine a library with separate card catalogs for various rooms—art, science, history, fiction—with the many cards in each catalog organized by topic and subtopic.

Organizing by Block Drives store files in sequences of uniquely identified *blocks*—usually 512K chunks of data—and the disk catalog specifies which blocks a file occupies. A file, unlike a library book, may be fragmented into several pieces, with each fragment stored at a different location. For a

by Lon Poole

Expanding

CHARLY FRANKLIN



THIRD

I N A

THREE-

P A R T

SERIES

the System

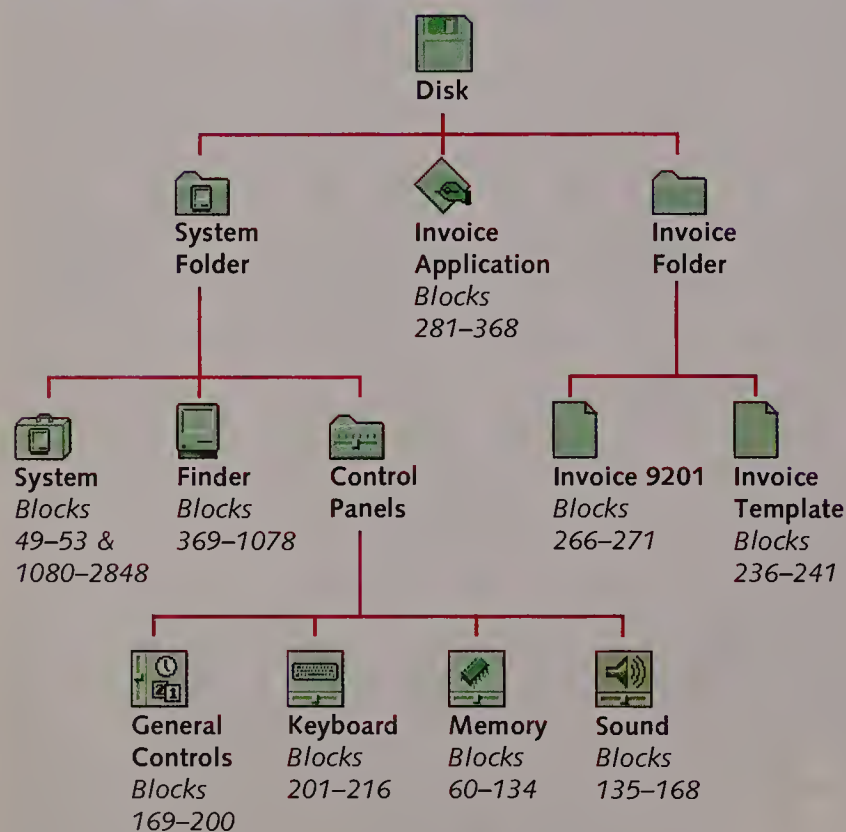


Retrieving Stored Information

The computer supplements the RAM on its logic board with various types of storage devices. Most devices store information—documents, applications, and so forth—in files. The system software organizes files and keeps track of their whereabouts in catalogs.

Despite similar file organization, the two most common storage devices, hard drives and CD ROM drives, use different methods to store data. Whereas hard drives read and write data magnetically, CD ROM drives read information optically.

FILE ORGANIZATION



The computer keeps track of all disk files in hierarchical catalogs. Each disk—a hard drive, floppy disk, CD ROM, or other device—has a catalog that specifies the location (numerical ID) for each chunk (block) of data in each file. The catalog is organized like a family tree that contains a name and an address for each person.

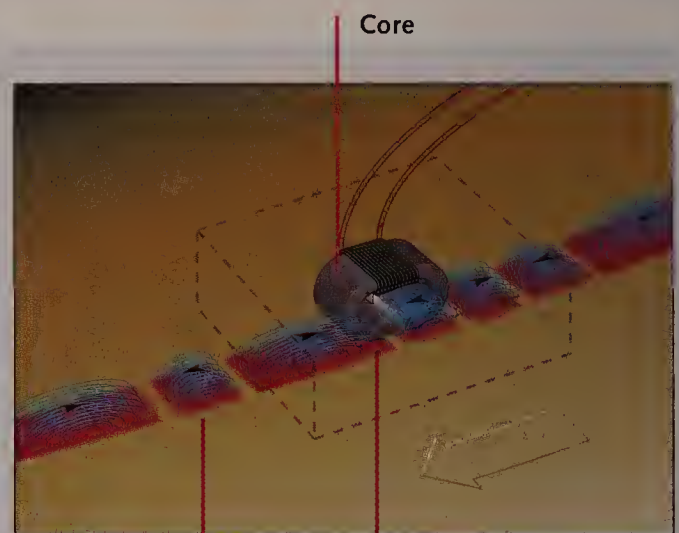
CD ROM DRIVE CLOSE-UP



3M PRERECORDED OPTICAL MEDIA

TRACING FILE RETRIEVAL IN A HARD DRIVE

When the computer asks a hard drive to retrieve specific blocks of information, the drive's logic board positions the read-write head over the track that contains the requested blocks (each block has a specific, known location). Then the logic board waits for the rotating disk to bring the requested blocks to the head. Magnetic changes in the disk surface spinning beneath the head generate electrical pulses. As the

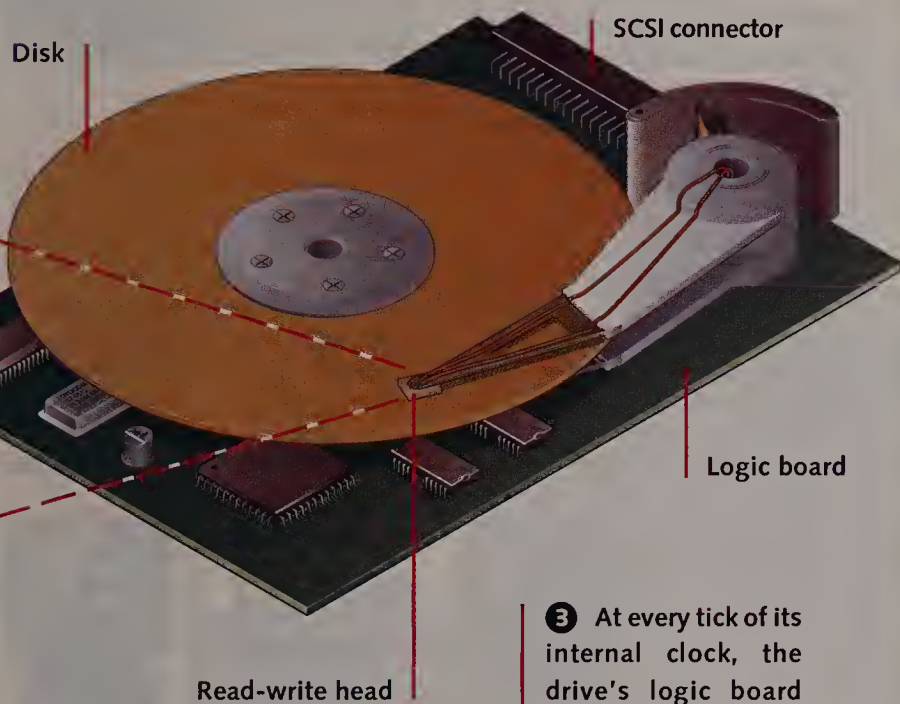


1 The tiny magnetic particles coating the disk surface are magnetized into regions with the same direction of flux (polarity). These regions pass beneath the drive's read-write head as the disk rotates clockwise.

2 The head's iron core becomes magnetized in the same direction as the passing region of the disk. Each change in magnetic direction generates an electrical pulse in the coil of wire wound around the core.



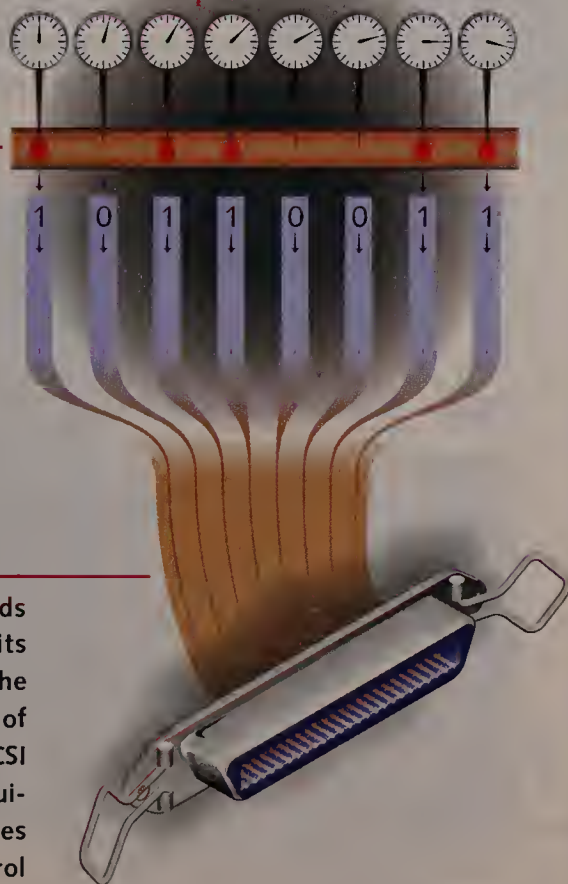
requested blocks pass the head, the logic board interprets the pulses as binary 1s and 0s and sends them to the computer. Conversely, when the computer sends data to the hard drive for storage, the drive's logic board converts the binary data to electrical pulses. Each pulse magnetizes the head momentarily, and the head resets the magnetic orientation of the region of the disk surface passing beneath the head.



3 At every tick of its internal clock, the drive's logic board checks to see if there is a pulse from the read-write head.

4 If a pulse occurs when the clock ticks, the logic board produces a binary 1. If there is no pulse when the clock ticks, the logic board produces a binary 0.

5 The drive sends eight binary digits (bits) at a time to the computer on eight of the wires in the SCSI connector (or its equivalent). Other wires are used for control signals, such as verifying that the drive is active.



fragmented file, the disk catalog lists the starting block and the length for each fragment. Although the File Manager knows which blocks make up a file, it does not know how to transfer the information in those blocks to or from a drive. That's the job of driver software. Each type of drive has its own driver, and the driver translates the File Manager's requests for blocks into commands the drive understands. The driver knows how the drive arranges information on the disk surface—in concentric rings called *tracks*, with each track divided into *sectors* that commonly hold 512 bytes apiece. The driver converts the File Manager's generic block numbers into the track and sector numbers that tell a drive where to find the blocks.

The Macintosh's file-access method is not unusual. Other computers may lack visual folders, but they too have a hierarchical filing system with directories instead of catalogs, and subdirectories instead of folders.

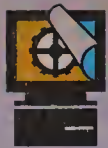
Encoding Data When a drive receives a command from the computer to access a specific track and sector, the drive's controller circuitry—its own logic board—signals an electromechanical actuator to position a read-write head precisely above the specified track. All this time the disk surface is spinning at 3600 rpm or faster, or about 37.5 mph at the disk's edge, and the controller keeps track of which sector is passing under the read-write head by counting timing marks laid down during disk formatting.

The data on the drive is encoded with magnetic particles on the disk's two surfaces (a hard drive may contain several disks) as a pattern of *magnetic flux*—basically, the change from particle to particle of the orientation of their north and south poles (see "Retrieving Stored Information"). With the read-write head above the specified track, the controller waits until the specified sector approaches. Inside the head, a tiny electromagnet senses the changes in the particle's orientation and in response generates a variable electrical current. The controller converts the variable current to digital data and sends it to the computer. When you save a file, the controller circuitry converts the file's digital contents to a variable current, which flows through the read-write head and resets the orientation of the disk's magnetic particles.

The workings of optical storage devices differ from those of hard drives. CD ROM drives, for example, do not have magnetic read-write heads and cannot write information. Instead, a CD ROM drive's read-only head focuses a laser beam on the compact disc's surface. The disc reflects the laser beam back to the read-only head unless the beam enters one of the many microscopic pits etched on the disc during its manufacture. A light sensor in the head generates an electrical signal when it detects a reflection but does not generate a signal when there is no reflection. The drive's controller converts the on-off signals to bytes of digital data and sends them to the computer.

Macintosh hard drives and CD ROM drives transfer data to and from the computer 1 byte (8 bits) at a time over a connection called SCSI—small computer system interface—that is the Mac standard for connecting storage devices and is increasingly popular on other personal computers. PCs that don't use a SCSI port transfer data 1 or 2 bytes (8 or 16 bits) at a time, depending on their hardware. Overall data-transfer rates range from 250K to 5MB per second, depending on the system.

Putting the Data on Paper When you want to put words on paper, you can write them out longhand or type



YOUR COMPUTER REVEALED

Expanding the System

them up. You could even “print” them by brute force, the way a computer does. Here’s how: First make stencils for every letter and every graphic object on a particular page. Then you arrange the stencils on a sheet of graph paper and fill in every fully exposed square. The smaller the grid of your graph paper, the finer the detail of objects on the page—and the longer it takes you to fill in the squares. Could you make the stencils and neatly fill in 2 million squares in under a minute, as a computer and a laser printer do together? Not likely.

Printing begins on a Macintosh when you click OK in a Print dialog box. Your application prepares a description of every object on each page. For text, it specifies font, size, style, and so on. For graphic objects, the application specifies the shape, size, line weight, fill pattern, and other attributes. Think of these descriptions as stencils.

The application gives the description and position of each item to QuickDraw, which is part of the Macintosh Toolbox software in ROM. With the help of the Printing Manager, which is part of the Mac Operating System software, QuickDraw prepares a script of actions necessary to draw the whole page. This script is generic enough to work with any type of printer. The script is actually a list of QuickDraw commands, but you can visualize it as a stencil with outlines of all objects on the page.

Neither QuickDraw nor the Printing Manager sends the generic QuickDraw script directly to the printer. Printer driver software—each printer type has its own version—translates the generic script into a form the printer can use, and then sends the result to the printer. For example, the driver for a LaserWriter translates the QuickDraw script into a PostScript program and sends that program to the printer. (Like QuickDraw, PostScript is essentially a language used to describe text and graphics.) The LaserWriter’s circuitry (essentially, its own logic board) executes the PostScript program, rendering an image as a pattern of toner dots converted from the original outlines (see “Printing a Document”). In contrast, the driver for a StyleWriter has QuickDraw prepare a page image on the Mac, and then the driver sends the image to the printer, which sprays liquid ink dots.

It’s Data on the Line When you need to talk to someone across town or around the world, you pick up the phone and dial. In the same way, your computer can communicate with other computers, large and small. Computers can call each other over the public telephone network, and they can be wired together in private networks.

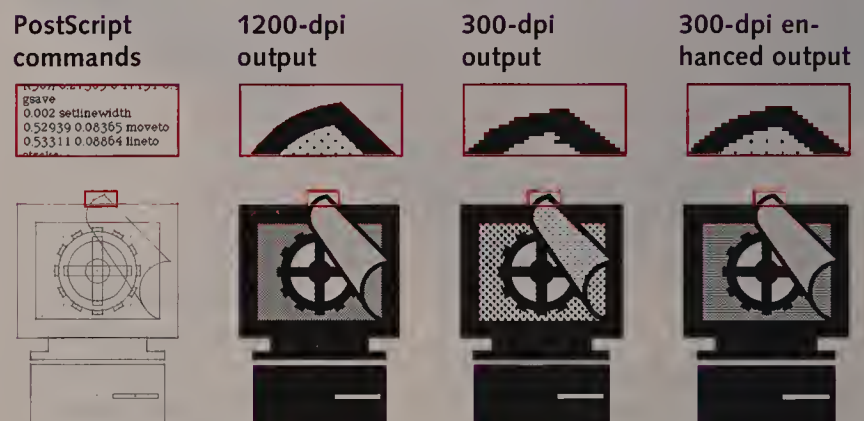
Computers communicate with each other by brute force—that’s how they do most everything. They send and receive every byte of information serially, 1 bit at a time, thus the term *serial communication*. Imagine that you could not speak in words on the phone, but instead had to spell out every word using a phonetic alphabet, like “Echo Lima Victor India Sierra *pause* India Sierra *pause* Alpha Lima India Victor Echo.” Still, because of their brawn, computers manage to communicate serially at adequate speeds (see “Communicating with Other Computers”).

Unlike people, computers can’t “speak” directly to one another over the phone. Before a computer’s digital data can be sent over ordinary telephone lines, the digital data must be converted to sounds. On receipt, the sounds must be converted back to digital data. Each computer must have a modem (short for *modulator-demodulator*) to handle these conversion chores.

Printing a Document

Printing a document takes several steps. The application begins by preparing a description of every object on the page to be printed. Most Macintosh applications use QuickDraw, which is part of the system software, to describe the page. Then, depending on the type of printer, either the computer or the printer prepares the page image. The process of applying ink or its equivalent onto paper varies according to the type of printer.

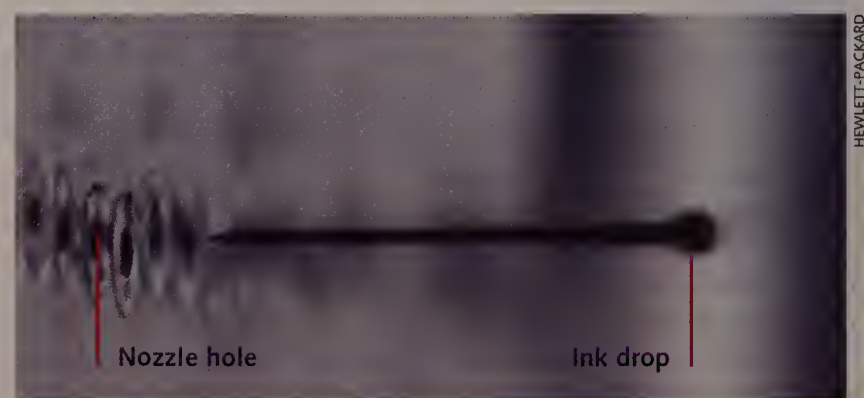
PREPARING AN IMAGE



To print on a PostScript printer, most Macintosh applications have the printer driver software translate QuickDraw page descriptions into PostScript commands and send them to the printer. The PostScript commands tell the printer how to create a page image as a pattern of dots. A printer that prints 1200 dpi (dots per inch), such as an imagesetter, prints a finer-grained image than a 300-dpi printer. Some printers can vary the size of the dots to achieve more shades of gray and smoother edges of printed objects.

When printing to a non-PostScript printer, the printer driver, QuickDraw, and other system software create the page image as a pattern of dots on the computer and send the dot pattern to the printer. The dot size depends on the printer’s resolution.

INK-JET PRINTER CLOSE-UP



The print head (side view shown here) of an ink-jet printer contains a line of tiny nozzles that shoot liquid ink in thin streams. The printer forces ink through each nozzle as the print head travels across the paper, creating the dot pattern the printer receives from the computer.

TRACING A LASER PRINTER'S ACTIONS

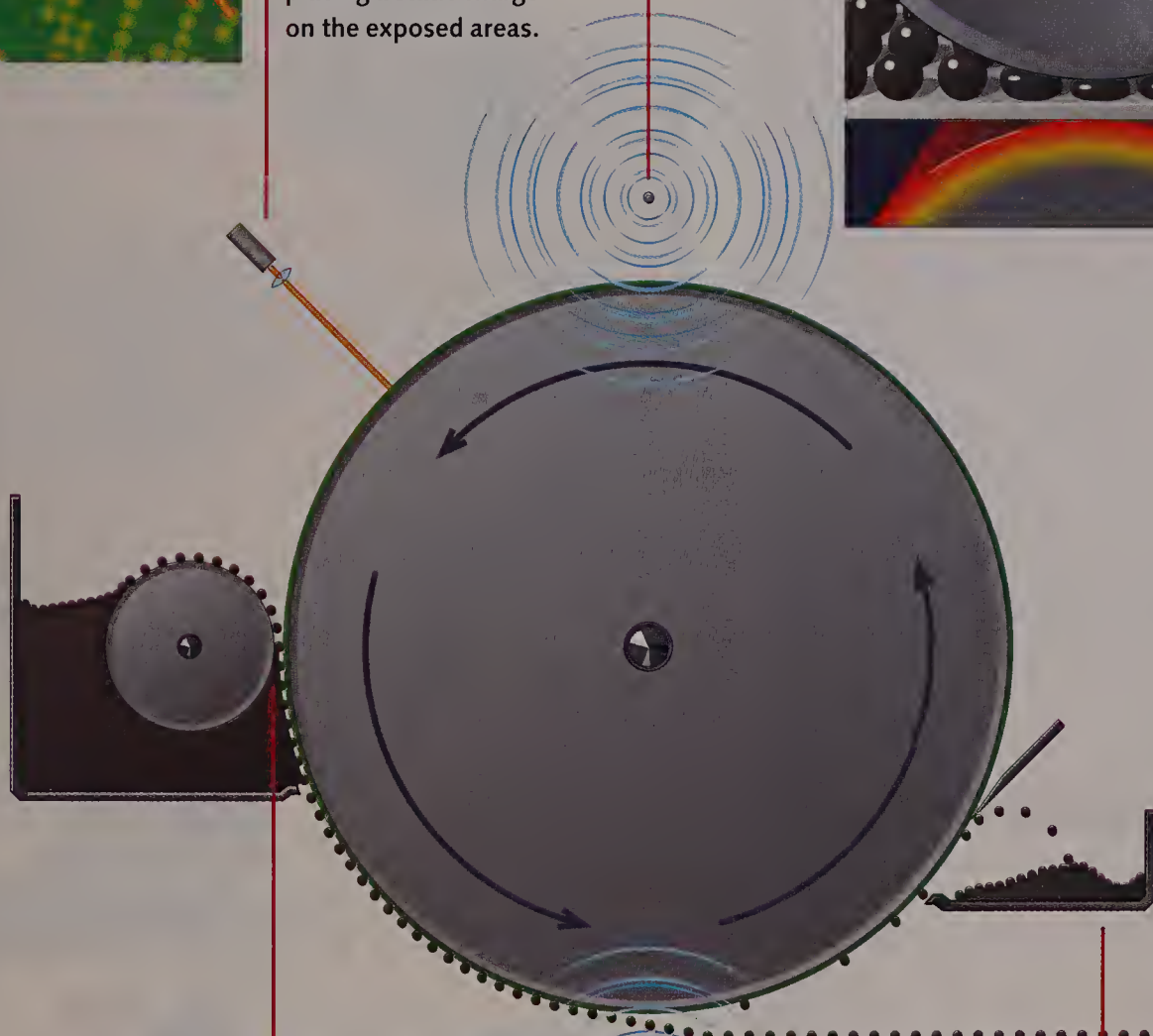


1 A laser beam inside the printer traces the image's dot pattern onto a rotating photosensitive drum, placing a static charge on the exposed areas.

7 A charged wire neutralizes any remaining charge on the drum, preparing it for a fresh exposure from the laser.



6 With heat and pressure, rollers fuse the loose toner to the paper.



2 As the photosensitive drum rotates, it passes a second drum that carries toner powder from a hopper. Toner particles are attracted to the first drum's charged areas.

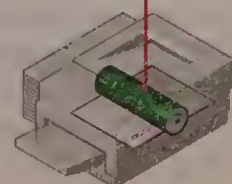


3 An electrically charged wire pulls the toner particles off the drum, and they fall onto a sheet of paper being fed between the drum and the wire.

4 A discharge brush removes the electric charge from the toner and the paper.

5 To remove any toner that didn't transfer, a blade scrapes the remaining particles from the drum into a receptacle.

Photosensitive drum

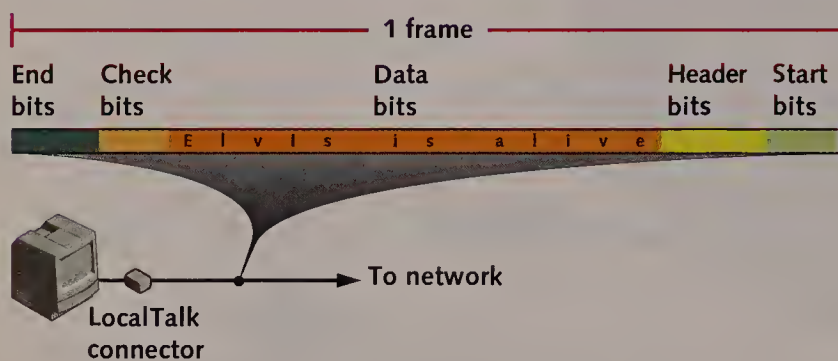


Communicating with Other Computers

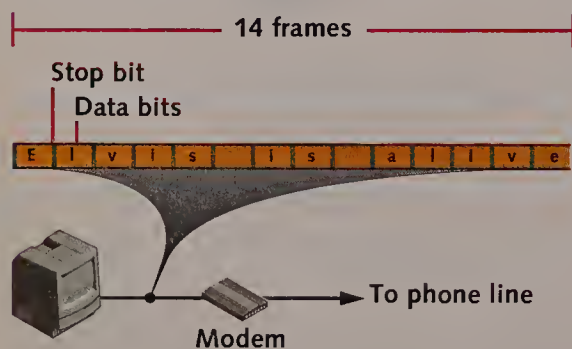
Although data moves through a modern personal computer's logic board 16 or 32 binary digits (bits) at a time, and between the computer and its high-capacity disk drives 8 or 16 bits at a time, the computer communicates with other computers serially—one bit after another. A computer can exchange messages and files serially with nearby computers (usually on the same floor or in the same building) that are physically wired together in a local area network. Distance is no factor when two computers communicate serially across ordinary telephone lines by using modems, which convert digital data to and from sound.

FRAMING SERIAL DATA

LOCALTALK PACKETS



MODEM PACKETS

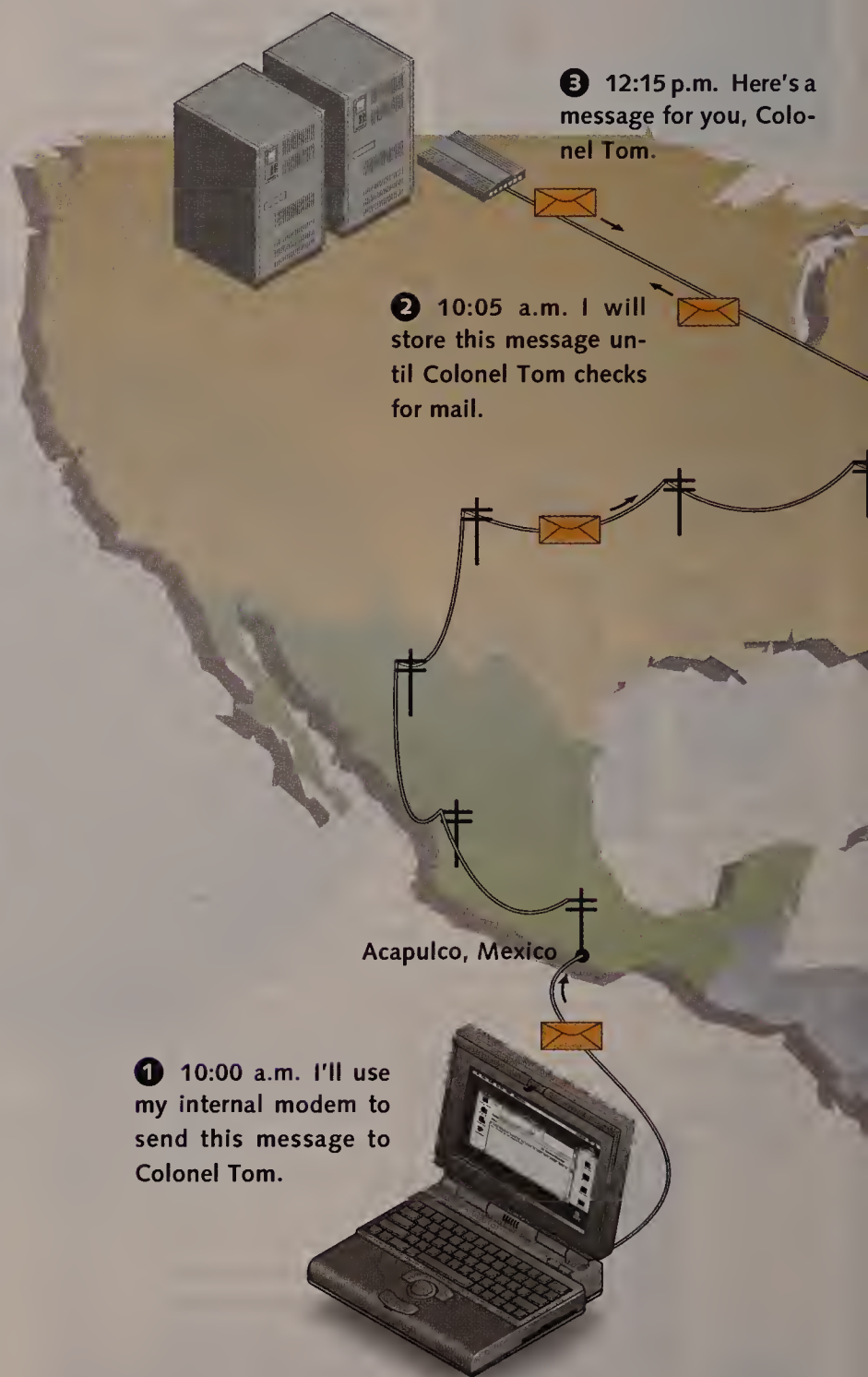


Computers send and receive data serially in packets and frame each packet with synchronizing signals. On a network, a header and a trailer frame each packet of serial data. The header marks the start of a frame (through start bits) and specifies the frame's sender, its recipient, and the amount of data it contains (through header bits). The trailer marks the end of the frame (through end bits) and contains statistics that the recipient uses to check the data for errors (through check bits).

When two computers are linked by modem, they exchange data serially in fixed-size frames, commonly 8 data bits per frame with an end-of-frame marker called a *stop bit*. Because the computers are linked directly, there's no need to specify the sender and recipient.

TRACING DATA EXCHANGE

Using a general terminal-emulation application or custom software, you can send a message by modem from anywhere you can make a phone call to the computer of a commercial information service. The service's computer stores the message and forwards it to the addressee.



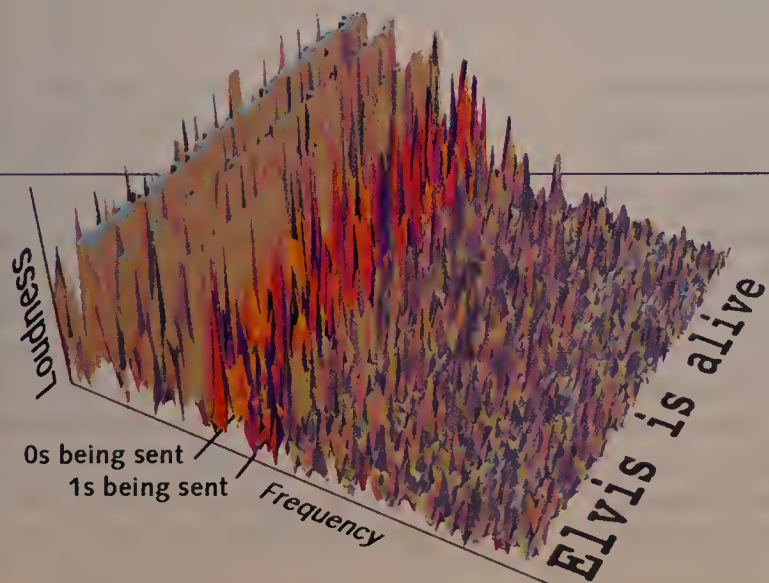
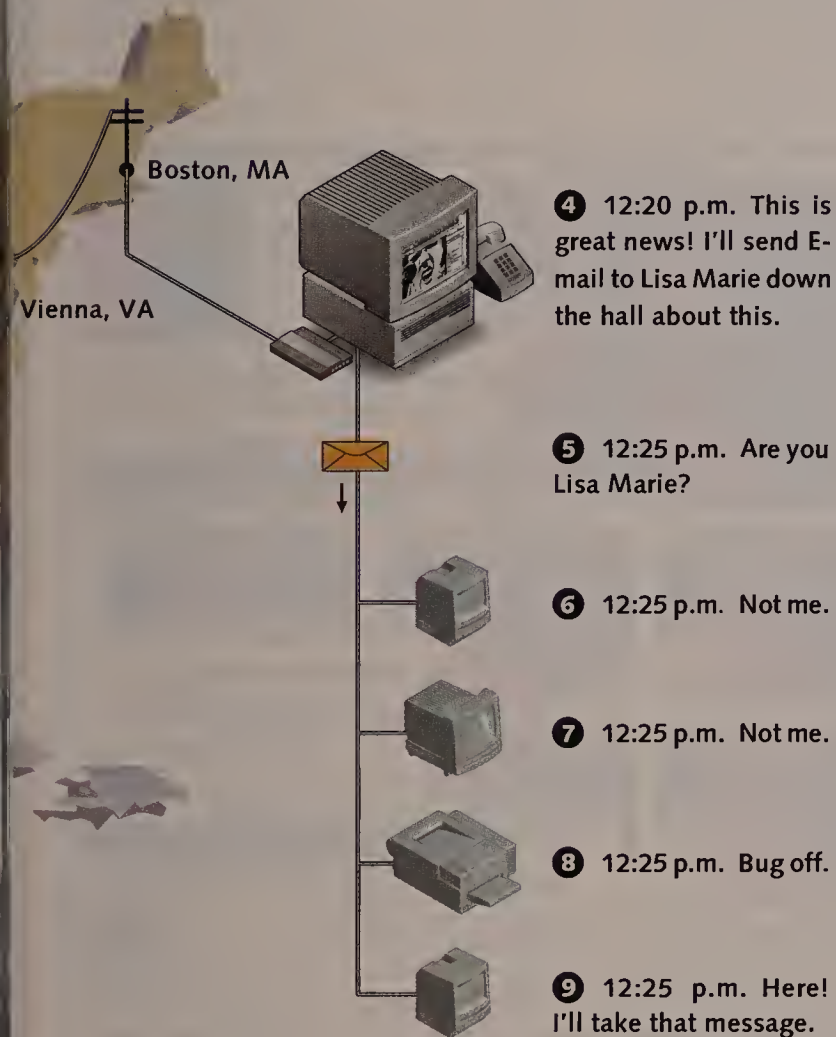
THE SOUND OF DATA

A modem sends and receives data as combinations of tones. At the slow speed of 300 bps (bits per second), the originating modem sends binary 0s as 1070Hz tones and 1s as 1270Hz tones, and at the same time receives 0s as 2025Hz tones and 1s as 2225Hz tones from the other modem. At transmission speeds above 1200 bps, modems encode digital data by varying the phase of sound waves (how they overlap) instead of their frequency, encoding 2 bits of data per phase shift. At right is a 3-D representation of the sound patterns sent over a 300-bps modem for the phrase "Elvis is alive." The peaks represent signals being sent.



when that person's computer contacts the service by modem.

By contrast, a message sent on a local network gets broadcast to every network device, but only the device to which it was addressed pays attention to it.



The Party Line A computer doesn't need a modem to communicate with nearby computers if they are all connected in a private, local area network (LAN). A LAN is like a party line. If you have a party-line telephone, you have to listen to make sure someone else isn't already using the line before you place your call. During your conversation, anyone on the same party line can listen in.

Similarly, a networked computer must wait until the network is free before sending data. A computer sends data to another computer by broadcasting it on the network along with the network address of the recipient. All networked computers receive the data, but only the computer to which it is addressed pays attention to it.

Macintosh computers include all the circuitry they need to send and receive data on a LocalTalk network. (LocalTalk is Apple's LAN hardware standard.) Macs in a LAN need only be connected with telephone wire or other inexpensive cables. Macintosh Quadras come with additional network circuitry for connecting to a high-speed Ethernet network, which can be a local or geographically dispersed network. Other Macintosh models require internal or external adapters to connect to an Ethernet network. Most other types of computers must have network adapter boards installed before they can be wired into any network.

The software that handles network communications may be a part of the operating system software, extensions to it, applications, or a combination. The Macintosh Operating System, for example, includes the AppleTalk Manager and a set of device drivers that together let applications (or other parts of the operating system) exchange data with programs on other networked computers. This exchange follows a well-defined *protocol*—a series of steps—to ensure that data does not get garbled in transit.

Computer users interact with an electronic-mail application to send each other messages. They use other application-level software such as System 7's Finder to gain access to files on networked computers or file servers. Some printers, including most LaserWriters, are connected to a LocalTalk network, and anyone using a Macintosh on the same network can print to them with any application.

The Expanding Universe Telephone, typewriter (or word processor), and books are three common means of extending your capabilities. Communication networks, printers, and high-capacity storage devices are the most common means of expanding the capabilities of basic computer systems, but not the only ones. In addition, you can add a scanner to bring printed graphics into your computer as digitized pictures and, with the aid of optical character recognition (OCR) software, to bring in typed or printed text. A video digitizer creates still pictures and motion pictures from a video camera, video recorder, or other video source. A computer can play musical instruments and music synthesizers if equipped with MIDI (Musical Instrument Digital Interface). These devices greatly enhance your computer's versatility, yet they are only the beginning of the expansion story, a story with nearly limitless variations that is not likely to end soon. **m**

Contributing editor LON POOLE has written *Amazing Mac Facts* (Microsoft Press, 1991) and *Macworld Guide to System 7* (IDG Books Worldwide, 1991).

Informational graphics by ARNE HURTY.

REVIEWS

IN THIS ISSUE: CompuServe Information Manager, Omnis 7, Kodak Renaissance, JobTracker, AutoCAD, Power Menus, PersonalFont, UpDiff, SnapBack, MacBreadboard, and more

Color Image Editor

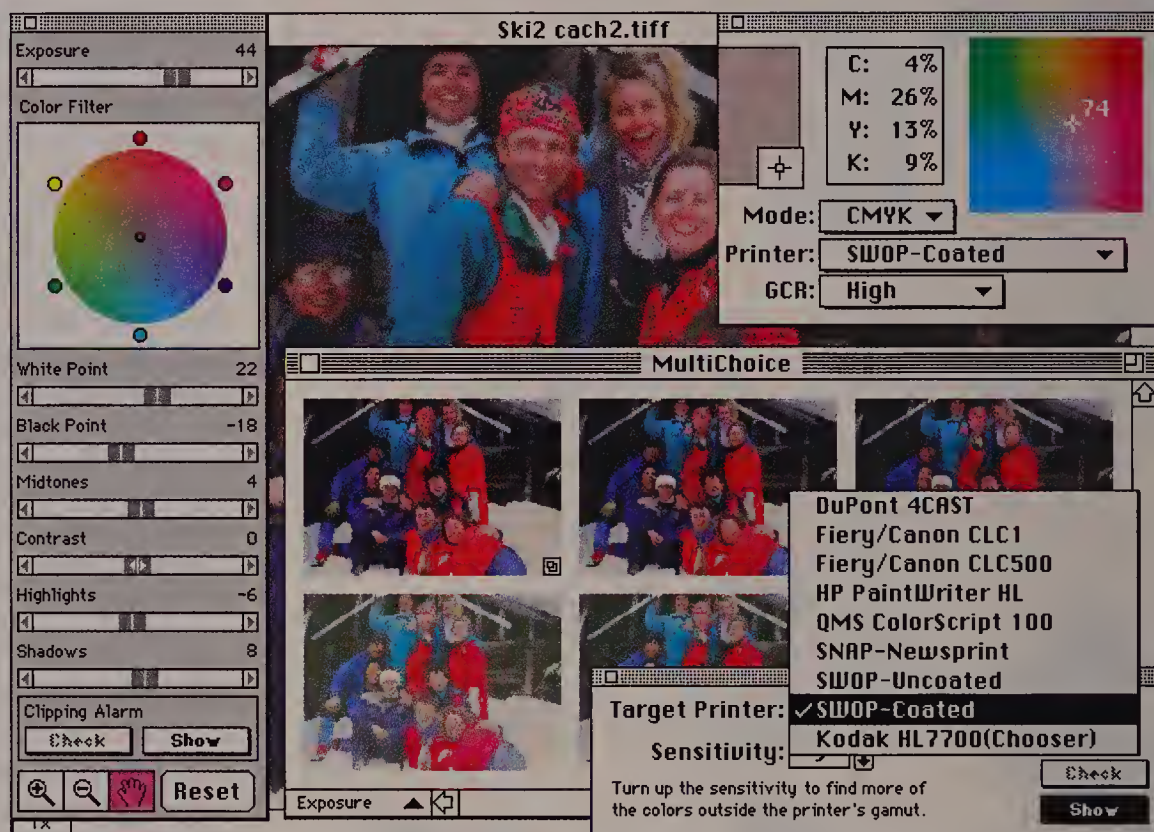
Cachet 1.0

PROS: Tools are well organized; minimizes data loss during correction; MultiChoice lets you set controls visually; clipping alarms warn of unprintable images; good color matching on output; high-quality separations. **CONS:** Slow, especially in high-resolution and MultiChoice modes; can only have one image open for correction; sharpening only on output; poor sharpening. **COMPANY:** Electronics for Imaging (415/742-3400). **REQUIRES:** Mac II (LC and IIsi require math coprocessor); 5MB of RAM; hard drive; color monitor; 8-bit color video board; 13MB free space on hard drive. Recommended: 8MB of RAM; 24-bit color video board. **LIST PRICE:** \$595.



IT'S NOT OFTEN THAT AN APPLICATION emerges that's as innovative as Electronics for Imaging's (EFI) Cachet. Billed as a "color editor," Cachet's main goal is to prepare scanned images for print—correcting, adjusting, sharpening, and separating. The tools, interface, output, and documentation are all quite impressive for a first version, though it still has some serious failings.

One of the central tenets underlying Cachet's design is that most photographs need correction before going to print. Simply adjusting the colors in a scan to match the original (using scan-calibration software such as Savitar's ScanMatch) does not solve this problem. Using calibration software can, in fact, reduce the quality of output, because data is necessarily lost in the automated correction process, before you even get to the inevitable data loss that is involved in manual correction.



Colors with Cachet Cachet's Exposure and Tone palette, at left, provides the essential tools for bringing a scan to printable form (including the Tone Clipping alarm, at bottom). Except for the color filter, the controls all affect the exposure of different parts of the image. The MultiChoice window is set to show a range of exposures (note the pop-up menu in its lower left), but it could show a range for any of Cachet's settings. The Color Meter (upper right) lets you determine the values in any section of an image (but not in a MultiChoice window). The Gamut Alarm (lower right) highlights colors that are outside the printer's capabilities (note the grayed-out areas in the background image). The pop-up menu (on the lower right) lists the device profiles currently provided with Cachet. EFI promises more in the future.

For those reasons, there is no automated scan correction in Cachet (though you can certainly use ScanMatch prior to opening a file in Cachet, if you want). Nor is there provision in Cachet for the almost impossible task of simulating on screen what will come out of a printer or printing press. The Tone Clipping and Gamut Clipping alarms (discussed later) address that issue in a more useful manner. You will find good color matching between output devices, however, thanks to Cachet's reliance on the Efi-

Color color-management system and associated printer profiles.

Making Changes

THE GOAL OF AVOIDING DATA LOSS before all corrections is central to Cachet's whole approach. Unlike in Adobe Photoshop—where you use one adjustment tool after another, losing some data with each correction—in Cachet none of your changes affect the file until you have made all of your changes. Cachet then concatenates all of those adjustments and

applies the result in a single pass (when you save or print).

You can, of course, see changes on screen as you are making them. By default, Cachet displays a reduced-resolution version of the image, so you can quickly make changes without having to wait for lengthy screen redraws. The correction tools are arranged so you can quickly work through the various controls, adjusting them in relation to each other to achieve a well-corrected image (see "Colors with Cachet").

There are three control palettes in Cachet—Exposure and Tone, Color, and Selective Color. The Exposure and Tone palette contains the majority of the correction tools, arranged top to bottom in a logical order. You can perform most corrections with this palette alone. The Color palette then lets you adjust color cast, saturation, and lightness, after you have your basic exposure controls set. The Selective Color palette enables you to select specific colors and areas of an image for correction.

Cachet's MultiChoice feature is perhaps its most impressive innovation. It lets you see several renditions of an image side by side, with a range of settings (various exposures, or black points, or highlights, and so forth) and select one by clicking on it. If you have settings you like, you can grab a snapshot, which you can revert to later. Or you can save a script, so you can apply all the same settings to another image without writing them down and setting them manually.

Unfortunately, while MultiChoice lets you see different settings for a single control, there's no way to see multiple renditions with different groups of settings at the same time. You can only have one image open for correction, so you can't, for instance, compare Snapshot1 to Snapshot2 to see which looks best. (You can save multiple versions of an image, open them for reference, and compare them, but you then have to close them and open one image for correction to work on it.) You can save images in TIFF (RGB or CMYK), PICT, Photoshop, or EPS (with DCS option) formats.

Tone and Gamut Clipping

TWO UNIQUE CACHET FEATURES THAT I find most useful are the Tone Clipping and Gamut Clipping alarms. The Tone Clipping alarm lets you see any areas of the image that are clipped—pure white or black (which you generally want to avoid because they indicate loss of shadow and highlight detail). You can tweak settings to avoid the clipping, then check again. The Gamut Clipping alarm checks for colors that are outside the capabilities, or

Comparing Speed

Times are in seconds.

These tests were performed on a 2MB RGB TIFF file, using a Mac IIcx with 8MB of RAM.

	Cachet	Adobe Photoshop
Open	53	20
Sharpen	130*	75
Print**	260	210
Save	35	8

* Sharpens each time you print, or save separations.

** Not including sharpening or color correction.

gamut, of your printing method. So, for instance, you can gradually increase the saturation for a colorful scene, checking each adjustment with the Gamut Clipping alarm, to get as saturated an image as possible without producing something unprintable.

Both of these alarms would be better if they were fully live and interactive, rather than requiring you to press a button after making each correction to see the problem areas (as you change settings the clipping mask changes). The alarms would also be more useful if they worked in MultiChoice windows. As they stand now, however, the alarms are almost essential, and I sorely miss them in Photoshop and its ilk.

Edit by Reference

ANOTHER UNIQUE ASPECT OF CACHET's approach is the edit-by-reference technique. The program comes with 24 reference images—both on disk and in printed form. You can open an image for reference (so it isn't affected by your corrections) that has colors and lighting similar to the image you're correcting. Then you adjust the colors in your image to match those in the reference image. By looking at the printed reference image, you get some idea of what your image will look like when printed.

In practice, I find working with reference images extremely difficult. First, it is hard to find an image that matches yours (aside from various skin tones and blue skies). You can build your own library of reference images in the course of using Cachet; and additional reference images are available from PhotoDisk (206/441-9355), which sells CD ROMs that are full of scanned images. But even with four times the number provided with Cachet, I could not find one with dirty white snow (only with virgin, sunset-lit snow).

The other problem with editing by reference is getting colors to match. You can adjust one part of an image—people's faces, for instance—so it matches beautifully, but you might end up with blue gray

trees instead of green ones. If you then adjust the trees' color, the faces are wrong.

Selective Editing

IF THERE'S NO WAY TO CORRECT AN overall image to get all the colors right, you can use Cachet's Selective Color palette. There are tools for selecting all instances of a color ("gimme everything that's the color of those blue jeans") and for masking out areas that you don't want to correct. Then you can change color cast, saturation, and lightness for those colors, or use the eyedropper tool to replace them with a color selected from another part of the image.

Cachet's selective editing works well when you need to make simple changes ("turn down the saturation on those neon green tennis shoes!"), but it is less effective for complex images (leaves and trees against a stone wall). And since Cachet is missing the blending, smudging, and blurring tools familiar from paint programs, it's often difficult to blend selectively modified areas with their backgrounds.

Cold Blackstrap Molasses

CACHET HAS PROBLEMS WHEN IT comes to resolution, zooming, screen redraw, and display speed. It doesn't let you interrupt screen redraw (arguably Photoshop's best feature), so these problems are triply exacerbated.

With a single image open, displayed at Cachet's Standard resolution, the program's speed of display and operation is just fine. If you open a MultiChoice window, however, Cachet has to display the image six times, and it starts getting slow (but it's still quite usable on a Macintosh IIcx). If you switch to a higher-resolution display mode (Zoom Detail and File Detail), however, especially with a MultiChoice window open, the program slows to a crawl. Simply moving a window, adjusting a slider, or opening a palette can involve a 45-second wait (or even longer).

Also, Cachet often changes magnification and view when you change detail mode—more zooming and panning, more lengthy redraws. In just about every activity, Cachet is much slower than Photoshop (see "Comparing Speed"). For extensive use of Cachet, you should plan to use a very fast machine and avoid high-resolution modes.

Cachet's greatest failing, however, is its sharpening, which is essential to quality output. Cachet applies sharpening only when you print, or when you save separations. It takes a long time each time; there are only five settings (none, low, medium, high, or maximum), which gives you very

continues

little control; and you never see the sharpening on screen—you have to judge how much you need based on printed output. The results are extremely disappointing—nowhere near the quality resulting from Photoshop's Unsharp Mask Filter.

Otherwise, Cachet really shines on output, especially in matching colors between output devices. The colors you see from a ColorScript printout are remarkably close to what you see off press—much better than Photoshop's matching. Unfortunately, you need to correct scans in Cachet, save them, run them through Photoshop's sharpening, save them again, open them again in Cachet, and then separate them.

What to Buy

IF I HAD TO BUY JUST ONE IMAGE EDITOR, I would buy Photoshop and wait for the next version of Cachet, because of Photoshop's speed, excellent sharpening, and wider range of tools. Cachet's clipping alarms, MultiChoice feature, and logical layout of controls, however, in addition to its separation prowess and color matching, make it very attractive to both advanced and novice users—if you also have Photoshop. If you produce many separations and can afford it, buy both.

—STEVE ROTH

Graphical Interface for CompuServe

CompuServe Information Manager 2.0.1

PROS: Makes CompuServe services easier and faster to access than before. **CONS:** Not all services accessible through icons, menus, or key commands. **COMPANY:** CompuServe (614/457-8600; 800/848-8199). **REQUIRES:** Mac Plus; hard drive; modem; System 6.0.5. **LIST PRICE:** New members \$49.95; current members \$25 or \$10 download from CompuServe.



A NEW WAY TO INTERFACE WITH the CompuServe online network has arrived with CompuServe Information Manager (CIM) version 2.0.1. CIM is CompuServe's proprietary interface to more than 1700 services and databases on the network.

Before CIM, Macintosh users of CompuServe needed to use terminal-emulation software to access information. You were forced to manually enter a numeric dial-up string followed by a network-identification number, user password, and log-on, just to access the network. To get to useful information,

you had to run through a series of sometimes seemingly endless mainframe-style menus (for example, you had to type the number of the item you wanted followed by a carriage return). CompuServe access from a Mac (and for that matter a PC) was time-consuming, cumbersome, and costly. CompuServe offers a \$7.95 basic-services option, which includes unlimited access to 30 preset services. Users also have the option of a \$2 monthly flat fee plus the hourly connect fee of \$12.80 for 1200 to 2400 bps, or \$22.80 for 9600-bps access. Additional charges for accessing some databases are set by the vendor.

CIM enables you to sign on to the network and reach some information solely by double-clicking on a button on the screen. Yet much of the heart of the system still requires you to type a number followed by a carriage return to select a menu item that has that number.

CIM 2.0.1 goes one step further than its predecessor (version 1.6) in ease of network use. Probably the most notable change in CIM is the colorized interface. The color presentation on screen is definitely more appealing than the black-and-white version. CIM allows you to remove the CIM Data File, which contains the color icons, if you are using a monochrome monitor.

CIM 2.0.1 is quicker than its predecessor in accessing the network, disconnecting from the network, displaying information in the filing cabinet, marking lists in forums, and updating in the background. None of these functions are new, just quicker.

Balloon help, for System 7 users, is a new addition to the product. It works, but there are two problems. First, balloon help is not fully implemented (the icons within the Browse or General Services menu have no help). Second, most of the balloon help refers you to another help area, found under the System 7 Balloon Help menu. Consequently, you often must go to two places to find the information you want.

The Executive News Service (ENS) is greatly enhanced through a windowed interface. This interface simplifies selecting news sources, setting up routine checks for certain types of news, and downloading information to predefined folders, where you can read it offline.

Sending and receiving mail is easier, too. CIM now lets you create group addresses—addresses that contain a set of individuals to whom you want to send mail. The address book also has a sort feature that enables you to sort by first name, last name, address, or comments in ascending or descending order.

CIM still needs the ability to easily

add new names and addresses to the address book or group address. You have to know the member's name and address (which you can cut and paste from the Membership Directory section of CompuServe). You cannot simply point to a member's vital statistics online and automatically place them in the address book (as you can on AppleLink).

Out of all CIM's capabilities, Forum Messaging is the only complete implementation of Apple's human interface guidelines (HIG). You can either point to an icon on the screen, use a key command, or use a pull-down menu to execute a command. Also within the Forum area, a new feature of CIM enables you to compose messages offline and then send them to the correct place on the forum you've chosen.

CIM 2.0.1 enables you to manage information more easily from within databases. A new feature enables you either to file an article in a filing cabinet or to forward it to another member.

Finally, the controls layered into CIM 2.0.1 for the CB Simulator make this forum much easier to access and more fun to use. You can tune in to one of the 36 channels in Bands A or B just by pushing a button. You can monitor a band, see who is using a channel, and find out its status by simply clicking on a button in the Selector.

While these new features make CIM more Mac-like, it still needs some improvements. First, it needs to implement HIG more completely. There are many partial implementations throughout the product—for example, you can use the keyboard to execute commands in one forum but must use icons in another. Second, only some of the services have a Mac interface. When you reach many services or databases, you are back in the world of type 1 and hit return to select the first menu item. CIM paints the screen one line at a time in terminal-emulation mode and is often slow to execute commands.

There also needs to be some easier way to find out about the 1700 available databases and their pricing (aside from combing the manual or going online). CompuServe is blessed with a host of information databases; yet finding what you want isn't always easy. My suggestion is that CompuServe implement a downloadable file (as a part of CIM) that lets you get online help (a description of the database along with surcharge pricing) for each available service and database. If this file could be updated periodically, you could figure out, offline, a lot of the searching you wanted to do online before you got there.

continues

Completely Organize Your Financial Life and Put Yourself in Control

**NEW Version 5.0.
for the Macintosh...**

Bank Account
Set up as many as you like. Print out a consolidated report of multiple accounts.

Type of Transaction
Pay bills by check or electronically via your modem.

Account List
Link your bills to an infinite number of budget categories. "Speed scroll" through your customized list in a split second.

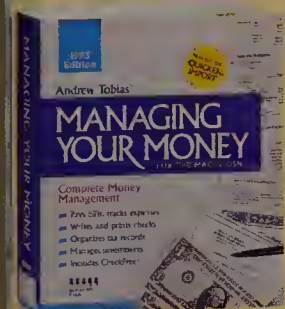
Save As Recurring
If this is a payment you make over and over, the program can automatically remind you.

Check Number
Automatically entered, but you can easily override it to track more than one series of check numbers.

Payee
"Remembers" every check you've ever written. Enter it once, and with "Payee Search," you never have to enter it again.

Address
Prints it on your check, plus remembers it for future use.

Memo
Enter a brief description or expand it into a memo of any length.



Andrew Tobias' **NEW Managing Your Money® Version 5.0** utilizes computer-quick ease to pay your bills, balance your checkbook, manage your investments, estimate your taxes, analyze your major

financial decisions, keep track of all your records, and more.

Bill-Paying Is a Snap.

Managing Your Money takes just minutes to master and start using. You'll enjoy nearly instant control over your finances. You'll know where your money is... where it's going... and why.

You Can Do All This and More:

- Organize and track all your expenses by category and subcategory.
- Print your checks automatically.
- Pay bills electronically through CheckFree®.
- Transfer financial information from Quicken®.
- Use "Recurring Transactions" to remind you of periodic payments like mortgages, car loans, and insurance premiums.
- Set up and maintain your budget. Compare your expenses against budget.

- Estimate your tax bill anytime. Your data is automatically entered. Use Form 1040, Schedule C, and six more forms, including Alternative Minimum Tax.
- Figure your net worth anytime. Automatically updated as your situation changes.
- Maintain an up-to-date portfolio valuation.
- Print out a hard copy of all your reports: Check Register, Net Worth Statement, Portfolio Status and more.
- Run your small business. Maintain payables and receivables, profit-and-loss statements, cash forecasting and balance sheets. Even print your invoices!
- Determine how much insurance you need.
- Analyze how much to save for children's education and your retirement.
- Decide whether to refinance a mortgage. Includes full loan amortization schedules.

Try Managing Your Money FREE

We'll send you Managing Your Money to try — FREE — when you pay \$8.50 for shipping, billed to your credit card (non-refundable).

If you aren't completely happy, simply write "No Thanks" on the packing slip and return it to us within 30 days. You won't be charged anything more. You don't even have to send back the software.

But if you're convinced that Managing Your Money will put you in control of your financial life, don't do anything. Thirty-five days after we ship your software, we'll bill your credit card the balance of \$49.95. Plus, send your Free Software Bonus: MacUSA™ (a \$69.95 value).

You've got nothing to lose. But you must respond to this special offer by **January 31, 1993**.

Order 24 hours a day, seven days a week

Call **1-800-284-1546 ext. 300**

Or fax to **1-800-944-6322**.

Or mail your order form to
**MECA Software, Inc., Box 912,
Fairfield, CT 06430-0912.**

System Requirements:

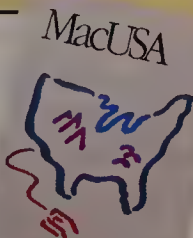
Macintosh — System 6.0.2 or later. System 7 compatible. Mac Plus or later. 2MB of memory recommended. 3MB of free hard disk space for installation. Macintosh version does not perform all of the functions in DOS version.
DOS — IBM PC, XT, AT, PS/1, PS/2 or IBM-compatible. DOS 3.0 or later. 512K RAM. Hard Disk. All rights reserved.

**MacUser and MacWorld
award-winning program!**



**Free Software Bonus:
MacUSA™ — a \$69.95 value**

For a limited time, we'll send you a copy of MacUSA absolutely free when we receive full payment for Managing Your Money. MacUSA is a 30,000-item library containing all kinds of useful information about American geography, weather patterns, tourist attractions, industry, agriculture, and more. (DOS customers will receive Hyatt Legal Services' Home Lawyer® software.)



☐ **YES!** Send me Andrew Tobias' new Managing Your Money Version 5.0 and charge my credit card \$8.50 for shipping (not refundable). If I'm not happy, I'll simply return the packing slip on which I've written "No Thanks," and that will be it. Otherwise, in 35 days, you'll bill my credit card for the balance of \$49.95 and send my Free Software Bonus: MacUSA, a \$69.95 value. (Credit cards only for Free Trial Option).

Media

☐ Mac (MMMT) ☐ DOS 5¼" (MIMT5) ☐ DOS 3½" (MIMT3)

☐ Early Decision Option (MECA pays shipping).

I'm already convinced. My check for the full amount is enclosed or charge my credit card the full \$49.95 (MECA pays shipping). Send me everything now, including MacUSA. If I'm not completely happy, I'll return Managing Your Money and MacUSA within 30 days for a full refund.

Media

☐ Mac (MM04) ☐ DOS 5¼" (MIH85) ☐ DOS 3½" (MIH83)

Payment Method (CA, CT, FL, TX residents please add sales tax)

☐ Check or Money Order enclosed, payable to MECA
(Early Decision Option Only)

☐ Please charge my
☐ VISA ☐ MasterCard ☐ American Express

Card #: _____

Exp. Date: ____/____

Signature: _____

Daytime Phone: (____) _____

Name: _____

Address: _____

City/State/Zip _____

Mail to: **MECA Software Inc., Dept. 300**
Box 912, Fairfield, CT 06430-0912

Finally, consistent pricing across all CompuServe services (as America Online and AppleLink have) would make the network a lot more user friendly (it's hard enough to keep track of what you want to find, let alone decipher your bill).

Overall, CIM 2.0.1 is a step in the right direction—making information access from CompuServe friendlier for the Macintosh user. A full implementation of HIG would make the product even better.—BERNARD J. DAVID

Database-Development System

Omnis 7 1.1

PROS: Has more speed and more features than Omnis 5; easy prototyping; includes top-notch debugger; generates Windows-compatible code.

CONS: Not for neophytes. **COMPANY:** Blyth Software (415/312-7100). **REQUIRES:** Mac Plus; 2MB of RAM (2.5MB for System 7); System 6.0. **LIST PRICE:** \$1250.



OMNIS 7 IS THE LATEST IN A LONG line of database-development products from Blyth Software, and it represents a strong argument for making continual small improvements rather than quantum-leap breakthroughs in product development. The product is the clear descendant of the modestly successful Omnis 5 (there was no Omnis 6), but Omnis 7 contains enough incremental advances to be a much more powerful programming environment.

Omnis has always been fast enough—the principal complaints about it have concerned the features list and programming facilities. The new version addresses both areas. In addition, some clever software engineering makes it a strong competitor in both the Mac and Windows markets—a serious advantage over traditional Mac favorites 4th Dimension from ACIUS and Helix (formerly Double Helix) from Helix.

Newsworthy

OMNIS 5 WAS RELATIVELY EASY TO learn, but part of the reason for this ease was the Spartan, feature-poor, un-Mac-like character of the applications it enabled you to create. You couldn't include pop-up menus or lists; you couldn't split windows, which could contain only fixed objects; and you couldn't cut and paste between data windows and reports.

Since these details had no analogs in the DOS world, there was an argument for leaving them out, albeit at the cost of impoverishing the Macintosh develop-

ment environment. Now that the operating system on the other side of the fence is Windows, Blyth Software provides Omnis 7 with all these features—and no compatibility problems. Developers can define special hierarchical menus in applications, call standard Macintosh menu items from procedures, and set background colors (Omnis was formerly resolutely monochrome).

Furthermore, in the process of rewriting Omnis from scratch in C++ (earlier versions were written in Pascal), Blyth decided to give developers additional programming support. The most important addition is a debugger, with a find/replace feature for all parts of procedures, direct and conditional breakpoints, tracing and single-stepping through procedures, and the ability to view any field's contents while a procedure is being executed. Since Omnis procedures are typically built from commands that you choose from scrolling lists, applications tend to be quite solid; but now you can track down any bugs that creep in. Programmers can now pass variables between procedures and between external programs and an Omnis application. Omnis 7 supports a binary field format, so any type of data can be held in a record. In addition, the system has 30 new combined date/time formats, "list" can be a field type, and programmers can access multiple databases simultaneously as lookup files.

Goodies, Speed, and Real Life

OMNIS 7 INCLUDES TWO SAMPLE programs: a contact manager and an invoice application (see "Just Plain Bill"). While these could both be used as real applications, they're included mainly as coding examples; Blyth is not interested in supporting database beginners with a huge array of canned applications.

Support for professional database developers is another matter. The speed of sorts, searches, and file import/export has been improved by 20 to 30 percent over Omnis 5. This means that for medium-size files (15,000 records) Omnis 7 is

slower than FoxBase+/Mac 2.01 and comparable to 4th Dimension 2.2.1 (speed depends on application-coding details, so specific comparisons are misleading). But speed of applications development is even more crucial to the developer's livelihood, and in this regard there are key improvements. Omnis 7 includes an Instant Report option with automatic formatting generated through a dialog box, preview of all report pages, and copying of report output to the Clipboard. It's possible to prototype a perfectly respectable small application with imported data files, simple procedure command menus, and customized instant reports in an hour or so of hands-on effort. FoxBase+/Mac is faster, and 4th Dimension has a richer command set, but Omnis 7's plain, businesslike functionality produces solid applications without much fuss.

Developers I interviewed at SFC Desktop Business Systems in San Francisco; Escape in Costa Mesa, California; and Aviation Information Services of Denver emphasized Omnis 7's economic advantage: an application developed on the Macintosh will run under Omnis 7 for Windows with essentially no changes. When the application is first ported to Windows, the developer must check and adjust for differences in font width and screen background color—an activity that typically takes a few hours for a commercial application.

Work in Omnis 5 can also be carried into the Omnis 7 environment with only minor changes. Publish and subscribe, Apple events, and Windows Dynamic Data Exchange features are implemented on both platforms; the program picks the correct platform-specific data-exchange commands at run time. Similarly, all help information is stored in a special data file used as the help source for an application; the program matches the on-screen implementation to the platform—the text in balloon help on the Macintosh appears as string help at the bottom of the Windows screen. While FoxBase+/Mac also offers Windows and Macintosh versions, most developers claim a bigger compatibility gulf and more up-front effort in coding.

Big Things in Big Packages

OMNIS 7 IS THE VERSION FOR STAND-alone and local area network (LAN) development, and it includes the database development kit plus extensions (access to external routines). Run-time modules (Blyth calls them deployment kits) cost \$250 each, and the upgrade from Omnis 5 to 7 is \$325. Omnis 7 Plus, at \$2500, is the version for SQL access. Besides the

continues

Qty	Stk Code	Description	Unit Price	Total Tax	Amount
33	00C	Catalog	20,000.00	99,000.00	759,000.00

Invoice Totals: 99,000.00 759,000.00

Just Plain Bill Omnis 7 includes a basic invoicing application, and developers are encouraged to inspect its procedure code as an example of proper Omnis style.

QuickKor Lease

YOUR MAC!

LEASING
MAKES
GOOD
SENSE!

CONSIDER THESE ADVANTAGES

- Leasing is FAST and EASY!
- Get more computer for your money - Leasing costs less
- Tax advantage - payments can be a deductible expense
- Have the system you need NOW, when you need it!
- Conserve your working capital
- Equipment pays for itself
- Have flexibility to expand

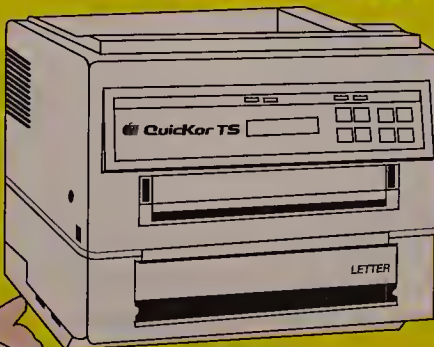
HERE'S HOW:

Just call with your business info, trade references and bank contact. We'll quote your package and ship your order upon quick credit approval!

*All leases are 3 year leases w/10% residual. Call for details.

BUSINESS
LEASES
AT AMERICA'S
BEST RATES!

QuickKor TS POSTSCRIPT LEVEL 2 PERSONAL LASER



Add the
QuickKor TS
Laser Printer to
any package for

\$69
per month
↓ ↓ ↓ ↓ ↓ 1/2

*As in MacUser Sept. 1992.
Call for reprint

- 35 genuine Adobe P/S fonts
- Auto switch between 4 optional paper trays
- Super fast RISC controller
- 2 MB RAM upgradeable to 10
- SCSI port for adding a hard drive
- Compact design
- Includes QuickKor Kare

A QuickKor
Lease on a QuickKor
Printer makes fast
work of any job!

EVERY
LEASE comes
with 2 years of
QUICKOR KARE
extended
service!

STOP!

Don't be fooled when
comparing systems.

QuickKor Kare

- 2 years extended service
- Next day air equipment replacement
- Unlimited toll free technical support
(Unlimited hand
holding by experts!)

68040
at 25MHz

"Power User"
Mac Quadra 700
\$299*
per month

5 YEAR HD
WARRANTY

- 20MB RAM
- 422MB Hewlett Packard HD
- E-Machines T-16II Multi-Res. Color Monitor
- Extended Keyboard
- QuickKor Kare

68030
at 25MHz

"Business Plus"
Mac IIfx
\$139*
per month

- 6 MB RAM
- 80 MB HD
- 14" Color Monitor
- Ext Keyboard w/
QuickKeys Light
- QuickKor Kare

68030 at
16.66MHz

"Office Manager"
Mac LC II
\$95*
per month

- 10MB RAM
- 40 MB Hard Drive
- 14" Color Monitor
- Ext. Kybd w/
QuickKeys Light
- QuickKor Kare

68030
at 25MHz

"Fast Track"
PowerBook 145
\$119*
per month

- 4 MB RAM
- 80 MB HD
- 1.44 Super floppy
- Reads DOS disks
- Lightweight
- Fits in briefcase
- QuickKor Kare

68040
at 33MHz

"Creative Director"
Mac Quadra 950
\$439*
per month

- 16 MB RAM
- 422 MB HP HD
- 19" Trinitron Monitor
- E-Machines Futura MX
- 24 Bit Video Card
- Ext Kybd w/ QuickKeys
Light
- QuickKor
Kare

5 YEAR HD
WARRANTY

"The Executive"
Mac IIfx
\$98*
per month

68030
at 16MHz

- 4 MB RAM
- 40 MB HD
- 14" Color Monitor
- Ext. Keyboard w/
QuickKeys Light
- QuickKor Kare

Why Lease your Mac from MacFriends?

- Competitive Pricing
- Customer Package Design Assistance
- Better Performance and Warranties
- Unlimited Toll-Free
Technical Support for 2 years
- Products Pre-assembled and Tested
- We're the Nation's MAC Specialists!

Mac
Friends

Call
MacFriends
Today...
The QuickKor
The Better!!

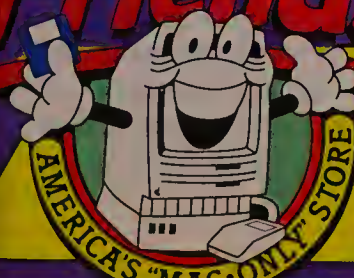
Call Toll Free Today!

800 331-1322

FEDERAL
EXPRESS

24 HOUR QUICKFAX: (503) 286-8710

LOCAL: (503) 286-9350



Omnis 7 material, Omnis 7 Plus includes the Omnis Connects package: SQL Express (a basic, ready-to-run SQL front end), SQL Server (for Microsoft and Sybase access), access to Oracle databases and Apple's Data Access Language, and SequeLink drivers (used in some A/UX, OS/2, and VAX/VMS systems). Graph-It, a basic business-graphing program, is also included, probably as an inducement to developers to present SQL-downloaded data to busy executives in picture form rather than as tables. Deployment kits for Omnis 7 Plus cost \$500 each, and the upgrade is \$650 plus \$150 per user.

All in All

MANY OF THE DATABASE APPLICATIONS developed in Omnis tend to be straightforward accounting, inventory, and business-management packages—page after page of boxes full of 9-point Monaco text. But simplicity can be an advantage, especially in preparing SQL-based company-wide reporting systems. Omnis enables developers to code bug-free applications in minimal time, and get Windows code for the same application with little additional effort. I fully expect any database roundup for the year 2002 will include Omnis 13, which will still not be the fastest or flashiest but will have an army of loyal developers.—CHARLES SEITER

Page-Design and -Layout Software

Kodak Renaissance

PROS: Good blend of page-layout and drawing functions; handles multiple page sizes simultaneously; powerful libraries function. **CONS:** Many features poorly implemented; inconsistent with Macintosh conventions; inadequate documentation. **COMPANY:** Eastman Kodak (716/724-4000). **REQUIRES:** Mac II (LC and IIx require math coprocessor); 5MB of RAM; hard drive; System 6.0.5; Adobe Type Manager and Type 1 PostScript fonts; 32-bit QuickDraw. **LIST PRICE:** \$695.



TO LURE AWAY DEVOTEES OF Aldus PageMaker and QuarkXPress, a challenger would need to include the best features of the two leading programs and add its own unique and powerful features. Most designers and business users are wary of plunking down the cost of a good fax machine for untried software that may or may not make their jobs easier, especially given the time they have invested learning their current programs. Kodak Renaissance, created by Atex and marketed by Eastman Kodak, provides several

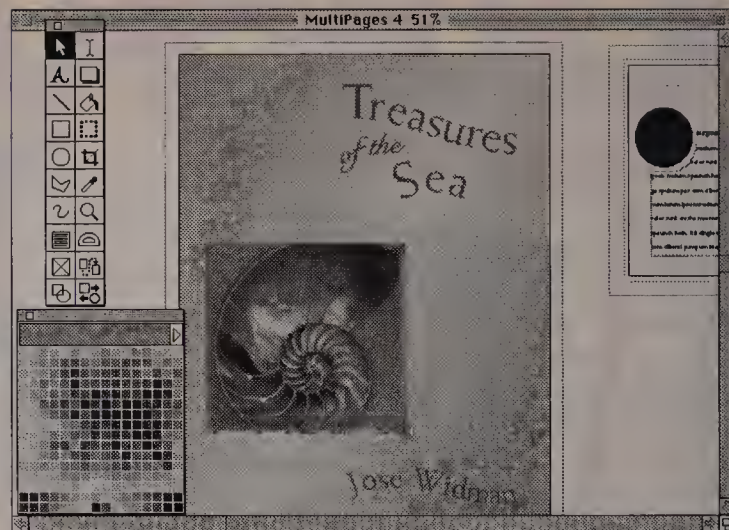
slick features that PageMaker and QuarkXPress should have incorporated a long time ago. But its failure to build on their successes could relegate Renaissance to the Dark Ages of desktop publishing.

Renaissance is positioned as a sketching tool for designers who are creating short documents such as ads or brochures. The program enables you to make quick adjustments to display text, lets you freely rotate text and graphics, and offers a full palette of drawing tools. Instead of having a pasteboard like PageMaker's, which limits you to a single page (or two similar pages), Renaissance lets you create and view several pages of different sizes simultaneously on a pasteboard that grows to accommodate them. You can move these pages around, and cut and copy them as easily as you would objects on a page. This is a great way to view short documents, but you'd never use Renaissance to lay out a book; moving from page 1 to page 60, say, would be a major effort, and Renaissance offers no indexing or chapter linking. Neither does it support master pages, automatic page numbering, or autoflow of text from page to page, all of which can be useful even in short multi-page documents.

Renaissance has several features that the page-layout leaders would do well to study. Nonprinting page guides designate margins, bleeds, and "extra"—the space allotted for notes, crop marks, and registration marks. An Element dialog box lets you resize objects proportionally, lock them, make them invisible, or make text automatically wrap around them; you can even attach a note.

Renaissance offers powerful (but far from intuitive) relational control over how objects in a group change when the group itself is resized or moved. For example, you can stretch grouped elements proportionally, maintaining their relative positions, or equally, which resizes the objects but not the spaces between them. You can even specify different horizontal and vertical control factors.

On the other hand, Renaissance blatantly ignores some of the most common Mac conventions. There is no keyboard shortcut or menu selection to select all objects on the page; you must zoom out to full-page view and use the pointer tool. Also missing are keyboard shortcuts for bold, italic, and underlined text, and for centering or justifying text. The shift key does not constrain moved objects at a 45-



Flexible Fliers Renaissance can easily create graduated fills and text on a path. A single document can contain varied page sizes.

or 90-degree angle. There's no grabber-hand shortcut to move the page around on screen. And so on.

Tooling Around

LIKE THE REST OF THE PROGRAM, Renaissance's 20-tool palette combines a strange mixture of power and oversight. The palette itself is nowhere to be seen when you open a document—you must first tear it off the menu. The drawing tools are powerful, but the screen stubbornly refuses to scroll if you attempt to draw beyond the window's edge. The Curve tool (similar to the freehand tool in draw programs) is a welcome inclusion, but it's also limited. You can't use the free-form tool to create filled curvilinear shapes; editing Bézier curves is both slower and clumsier than in either Aldus Free-Hand or Adobe Illustrator (you see the results of your edit only after you release the mouse button), and you can't alter the control points.

The powerful alignment tool requires careful reading of the manual and a bit of practice (don't be thrown off by the mysterious cursor transformations). Elements rotate easily and intuitively, although you can't rotate objects independently from their borders, as you can in QuarkXPress. Rounding out the toolbox are a drop-shadow tool and a paint bucket, which fills objects with custom gradients. Both are easy to use and real time-savers.

Two Types of Type

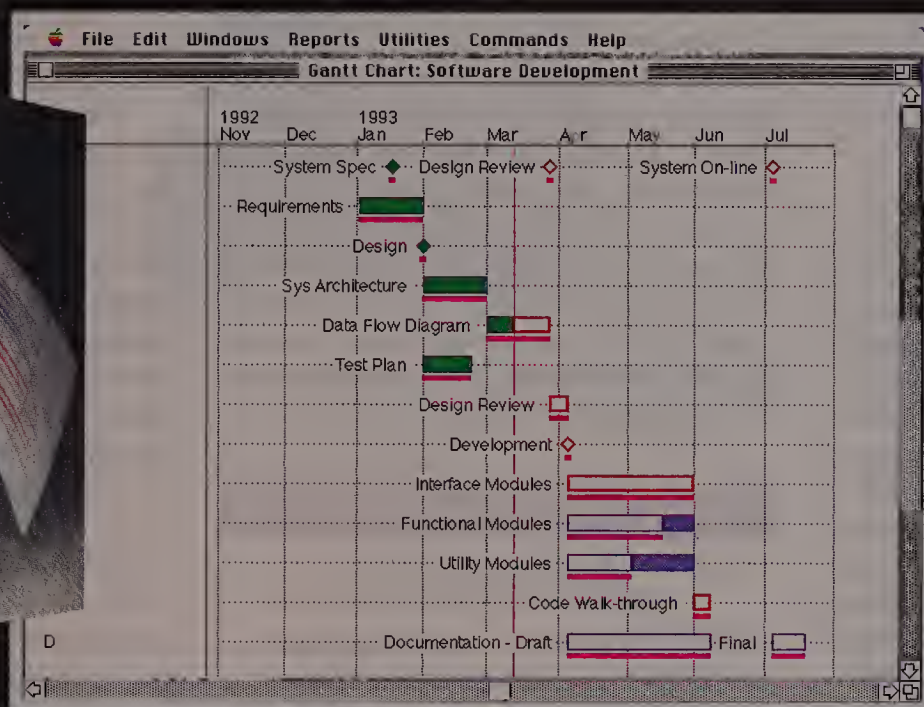
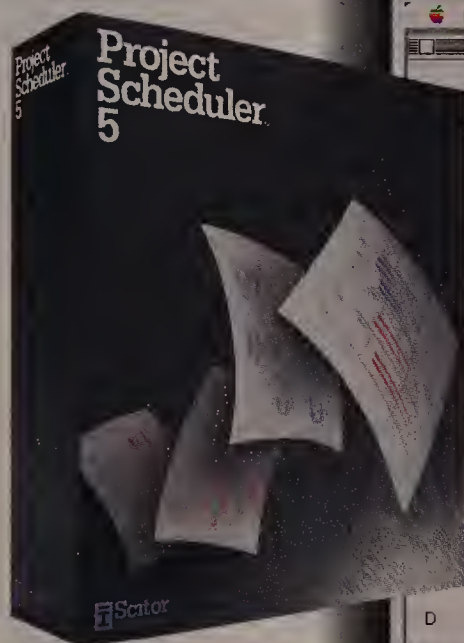
RENAISSANCE OFFERS SEPARATE TOOLS for creating display type and text type, a distinction that works nicely. Display type, although limited to one line, can be rapidly resized, skewed, and tracked. You can bind type to any object, a feature that is smoothly implemented; for example, you can edit text as it sits on a curve.

Working with body text is more problem-ridden. No matter how many spaces

continues

Project Scheduler 5™

Award-winning
Project Scheduler 4 just got better.



Introducing the next generation in the award-winning Project Scheduler series—Project Scheduler 5 for the Macintosh.

Awarded "Editor's Choice" by MACWORLD in April 1992, Project Scheduler 4 has gained greater functionality and enhanced performance in Project Scheduler 5. With Project Scheduler 5, you can meet the challenges of coordinating multiple projects. Now, managing tight schedules, limited resources, and different computing platforms is easier than you ever thought possible.

Effective communication.

As a project manager, you know that communication is your most important—and most difficult—task. With Project Scheduler 5, you can convey your scheduling information effectively through customized reports and schedules. And, since Project Scheduler 5 is available in Macintosh, DOS, and OS/2 versions, you can track projects and update schedules easily, even in a multi-platform environment.

Multi-project management with ease. With Project Scheduler 5 you can track resources and status across multiple projects. Integrate multiple projects into groups and establish dependencies that cross project

boundaries. Automatically calculate validated group schedules using error-free, cross-project critical path analysis. And automatically update individual projects to accommodate schedule commitments and changes made at the group level.

A professional product. Backed by professional support.

When you have a question, we'll get you the answer fast—without making you waste your time waiting in an electronic queue. Our support program even provides direct access to Project Scheduler 5's designers. And we offer the most comprehensive training and consulting program in the industry.

The ideal corporate solution.

Whether you're managing multiple projects in a Fortune 500 corporation, or a single project in a small business, Project Scheduler 5 is the fast, easy, and elegant way to make everything come together—on time, every time.

For more information, call or write:

415/570-7700

393 Vintage Park Drive
Suite 140
Foster City, CA 94404

Scitor Corporation

you insert after a word, the cursor refuses to budge from the end of the last-typed word. Letterspacing and hyphenation are powerful but quirky; for example, the program broke 6:30PM after the colon. Wrapping text around an object takes a little practice, and you can't alter the wrap border as you can in PageMaker and QuarkXPress.

The story editor, obviously copied from PageMaker, is a welcome feature. Unfortunately, you can't apply styles there; and worse, the program has no spelling checker or search-and-replace capabilities. Renaissance doesn't support TrueType, Type 3 PostScript, or Multiple Master fonts. However, the program's Styles feature is as comprehensive as its competitors', and laying in dummy text as a placeholder is a comparatively quick and simple procedure.

Pictures and More

OVERALL, RENAISSANCE HANDLES IMPORTED graphics with aplomb, making it easy for you to crop and scale to attain the desired image. The program does not support image control, but does provide excellent masking features that enable you to cut out unwanted portions of a TIFF or PICT image without first running to an image-manipulation program. Text can wrap around either the original border or the masked image. There are caveats, though. You cannot imbed inline graphics within text, and Renaissance cannot read TIFF files that have been compressed in the LZW format. According to Kodak, a future release will allow direct importation of its soon-to-be-released Photo CD format.

One of Renaissance's most powerful features is Libraries. You can save graphics, styles, page templates (complete with styled dummy text blocks), and custom color palettes. Editing each of the libraries is a simple procedure.

Color handling and printing with Renaissance are a mixed bag. While it's a treat to quickly drag colors from the floating palette and apply them to objects, the program doesn't let you use this procedure to colorize imported gray-scale images. You can specify a Pantone color as fast as you can type its ID number; unfortunately, that feature is hidden at the end of a series of four dialog boxes. Renaissance offers excellent printing control for knockouts, overprinting, and spot or process colors; yet attempting to print separations of imported color images from within the program proved frustrating; to print anything other than a CMYK image saved in EPS format, I needed to use a separation utility. Finally, the program has a limited number of PPDs, which makes

it a bit confusing to print screens other than the default screens offered.

Not Much Help

DOCUMENTATION IS SKIMPY, AMATEURISHLY written, and poorly indexed, especially when compared with the thoroughness of the Aldus and Quark manuals. Tech-support staff was friendly and returned most calls, but the person I spoke with seemed to know only slightly more than I did about the program. Finally, although Kodak claims the program runs on 5MB of RAM, you're better off upgrading to 8MB—the program's recommended RAM partition is over 3MB.

It's hard to envision a rosy future for Renaissance. Will designers loyal to PageMaker, QuarkXPress, FreeHand, and Illustrator make the switch? If the program's dozens of shortcomings were corrected in an upgrade, it could be a nice addition to the designer's toolbox, but it's not ready to replace any of the current drawing or layout leaders. In the meantime, however, competing layout programs would benefit from emulating some of Renaissance's innovations.—JIM SCHMAL

14,400-bps Data/Fax Modem for PowerBook

PowerPort/Gold

PROS: Built-in RJ-11 jack; V.42bis compression; good noise immunity; sophisticated fax management. **CONS:** May not work with some overseas phone systems; may have problems in compression mode with some modems. **COMPANY:** Global Village Communications (415/390-8200). **REQUIRES:** Mac PowerBook. **LIST PRICE:** \$649.



GLOBAL VILLAGE COMMUNICATIONS has refined its PowerPort modem with the introduction of the new Bronze, Silver, and Gold models. The only distinction among the three is data speed: 14,400 bps for the Gold, 9600 bps for the Silver, and 2400 bps for the Bronze. All three send and receive faxes at 9600 bps and use the same GlobalFax software now common to Global Village's entire line of fax/data modems.

The family supports fax send and receive, V.42, MNP and LAP-M error-correction protocols, and V.42bis and MNP Class 5 data compression. The manual includes clear, detailed instructions, with photos showing how to open a PowerBook and install the board. The procedure is not difficult, but if the PowerBook is still under warranty or AppleCare, an authorized dealer must install the modem.

Each of the new modems is completely contained on a single board. You simply plug in a standard RJ-11 phone plug and start communicating. The old PowerPort, which used an external adapter containing the actual phone jacks, has its graces, though, particularly for international travelers. First, the external adapter contains two phone jacks to enable you to connect a telephone to the same line as the computer. Second, you can use special adapters to meet the peculiar requirements of some overseas telephone systems. Global Village continues to sell the original PowerPort and adapters for users needing these features. The new built-in RJ-11 jack, however, works anywhere in the Americas, in Japan, and in much of Europe.

The new PowerPorts have no speakers, external switches, or status lights. Instead, a miniature bar graph in the Macintosh menu bar reports data flow, and dialing sounds come through the PowerBook's built-in speaker. The status bar doubles as a pull-down menu that lets you select command mode; originate, answer, and disconnect operations; as well as set auto-answer and data-compression modes.

The PowerPort/Gold connects readily to remote modems supporting the 14,400-bps data rate, although it's worth noting that few commercial services now support that speed; the capability is primarily useful for connecting to another Mac for use with AppleTalk Remote Access. However, operating at slower speeds can be tricky. While no problems result at speeds up to 9600 bps with data compression disabled, turning compression on makes slower-speed connections more difficult. With compression enabled, the PowerPort/Gold always starts communicating at 14,400 bps, expecting the remote modem to negotiate a lower rate. If the remote modem's top speed is from 2400 bps to 9600 bps, though, the remote modem may not reliably continue the negotiations, resulting in a disconnect. Global Village's just-released software seems to have improved the situation, and you can always disable compression to get a reliable (if slower) connection.

You send a fax by holding down the option key and selecting Fax from the Print menu. The resulting dialog box lets you choose destination addresses from a built-in telephone directory, and then select image quality, cover-page style, and a time to schedule the transmission, which occurs in the background while you continue working. A status bar reports progress, and the modem tries connecting again in the event of a busy signal, no answer, or a disconnect. You can choose to

continues

"The only way I'd file my own return is if I knew it'd be easier and faster than taking the stuff to someone else.

Of course, I'd have to know I was paying the least tax and it'd be perfectly accurate."

With TaxCut® Software, filing your own tax return is a simple two-step process:

- 1. Key in answers to the questions your computer asks.
- 2. Print and file!

It's guaranteed accurate, and you'll pay as little tax as the law allows. **Plus you'll get two Free Gifts.**

This year, team up with Andrew Tobias' TaxCut to complete your tax return. You'll have the skill of America's best tax professionals, plus computer power to save you time and money. Better yet, you'll fully understand your taxes as you never have before.

How It Works

You start by selecting the Interview, Shoebox, or the Direct-to-Forms method.

The Interview. TaxCut asks you simple Yes-or-No questions right on your computer screen. Based on your answers, TaxCut selects just those questions you must answer to correctly fill out your return, from the 3,000 questions in its bank.

As TaxCut learns more about you, it decides which forms you need and fills them out for you. The Interview asks you to key in the relevant numbers from your receipts, forms, etc.

After you've answered the questions, TaxCut shows you your completed return on the screen, and prints IRS-approved forms, on plain paper, ready to file.

The Shoebox. Pick up any receipt from your pile of records. Use the scroll-down list TaxCut shows you to identify the type of record. Then key in the number. TaxCut decides where it should go on your return...then does all the calculations.

Direct to Forms. If you prefer, you can go right to the forms. Simply enter the numbers, and let TaxCut automatically carry the amounts to each relevant form. TaxCut will then do all the math.

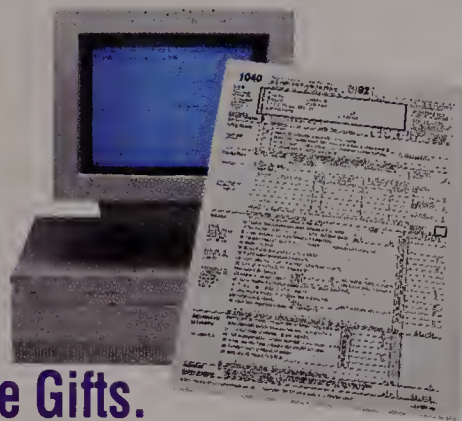
Be Your Own Tax Expert Instantly

TaxCut knows the entire Tax Code, so you don't have to. You access what you need to understand through the on-line Help with just a keystroke.

Or, go straight to IRS instructions for what you're trying to do, if you prefer.

TaxCut Audits Your Return Before You File

TaxCut checks every figure as you complete your return. Then it compares all your deductions with national averages.



The program alerts you to anything that looks out of line, to reduce the risk of an IRS audit.

Guaranteed Accurate

TaxCut is the only software to guarantee the accuracy of its calculations. If the IRS makes you pay a penalty because of a miscalculation in TaxCut, we'll pay that penalty for you.

Your Complete Tax Tool

TaxCut provides over 85 different IRS forms and worksheets, from the most common to the obscure. They're all IRS-approved, and print out on plain paper on any printer.

You can also file the new IRS-preferred 1040PC form (uses less paper). Or file electronically for a faster refund.

CA & NY State Editions Available This Year, Too

Data from your Federal return automatically transfers to the State Edition to save you time and ensure accuracy.

NEW!
TaxCut
for the Macintosh
Special Introductory Pricing!



Order By 1/31/93 To Get Two FREE Gifts

Order your TaxCut for the 1992 tax year before this special offer expires 1/31/93. Send us a check or money order, or we'll bill your credit card today only \$39.95 for the Federal edition and \$29.95 for each state edition (plus shipping). We'll immediately send your Free gift: MacUSA™, a \$69.95 software value. It's an exciting almanac and U.S. reference guide, right on your Macintosh. You'll also get 1992 Tax Tips by Daniel Caine to get you started right for the easiest tax preparation ever. Then in early February 1993, we'll automatically send you the IRS-approved Final Filing Edition of TaxCut.

To Order, Call Toll Free

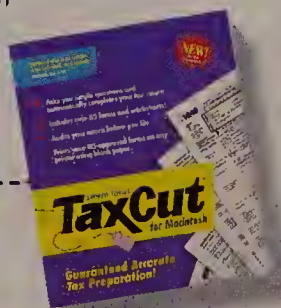
1-800-727-3694 ext.406

24 hours, 7 days a week

Or Fax Your Order To 1-800-944-6322

System Requirements

Mac Plus or Higher,
System 6.0.2,
Hard Disk Drive,
2 MB RAM
recommended.



☐ **YES!** Please reserve my copy of TaxCut for the 1992 tax year now (plus state editions indicated). You'll bill my credit card/cash my check today, and send my Free MacUSA™ software and the 1992 Tax Tips booklet. I'll receive the Final Edition of TaxCut in early February, after the Federal Government approves this year's tax forms.

TaxCut Edition	State	Price	Quantity	Total
Federal Only		\$39.95		
Federal/State	<input type="checkbox"/> CA <input type="checkbox"/> NY	\$69.90		
Additional State	<input type="checkbox"/> CA <input type="checkbox"/> NY	\$29.95		
Sales Tax (CA, CT, FL, and TX residents please add sales tax.)				
Shipping: \$8.50 US, \$16 Canada (U.S. Funds Please)				
Order Total				

NAME _____
STREET ADDRESS _____
CITY/STATE/ZIP _____
DAYTIME PHONE (In case of questions) _____
CARD NUMBER _____ EXP. DATE _____
SIGNATURE _____

Method of Payment:

☐ Check or Money Order Enclosed Payable to MECA

☐ Visa ☐ MasterCard ☐ AMEX

Canadian residents are responsible for all duties and taxes upon delivery. We can only ship and fulfill to U.S. street addresses, no P.O. Boxes (including PR, US Territories, FPOs, APOs, and Canada.)

Mail To:

MECA Software, Inc.

P.O. Box 912

Fairfield, CT, 06430-0912.

Source Code: 406

**Also available
at your favorite retailer.**

receive faxes manually or automatically—with or without PowerBook wake-up—and set to print them as they arrive or later. The stand-alone FaxCenter application lets you view and print received faxes, and uses a drag-and-drop interface for scheduling, enveloping (combining several faxes), or forwarding. An activity log tracks every fax transmission and any transmission errors that occur.

With the new GlobalFax software, you have an opportunity when rescheduling a fax to change the cover-page message, even if you've used the envelope feature to combine several faxes. The new software also gives you more control over the format of custom cover pages than was possible before. Finally, a new alert box requests confirmation when you drag faxes to the FaxCenter's trash can. One irritating gremlin remains: if a fax fails partway through transmission, you can't resume with the first missing page, but instead must send the entire document over again.

The PowerPort/Gold's improved software (which also works with the old PowerPort modem) and improved packaging raise the bar for PowerBook modem standards. If you need 14,400-bps throughput, the PowerPort/Gold is a champ. It's a pricey advantage, though, compared with its nearly-as-fast Silver sibling, which runs \$200 cheaper. But that's a race you'll have to judge for yourself. —MEL BECKMAN

Architectural CAD Software

AutoCAD Release 11

PROS: Very customizable; supports AutoLISP programming; good networking and file sharing with other AutoCAD platforms; accurate solids modeling. **CONS:** Expensive; RAM intensive; 68020- and 68030-based Macs require acceleration; little third-party support. **COMPANY:** Autodesk (415/332-2344). **REQUIRES:** Mac II with math coprocessor; 5MB of RAM (8MB for System 7; 16MB for optional AME module); hard drive; System 6.0.5 (System 7 for AME); 32-bit QuickDraw. **LIST PRICE:** \$3500; AME \$495.



AUTODESK'S FIRST ENTRY INTO the Macintosh CAD market was AutoCAD Release 10 for the Mac. Essentially a port from the DOS world, Release 10 didn't exactly take the Macintosh world by storm. Instead of giving the Mac version of AutoCAD a graphical user interface, Autodesk required users to conform to the DOS version's command-line interface. Macintosh users voted with

their pocketbooks—end of that story.

Release 11 for the Mac represents a change of direction for Autodesk's porting strategy. Icons, pull-down menus, and dialog boxes are in; the command line is on thin ice, though still in evidence, and is fading in importance. It's tempting to credit Macintosh for the change, but it's more likely that Microsoft Windows made Autodesk jump on the graphical user interface (GUI) bandwagon.

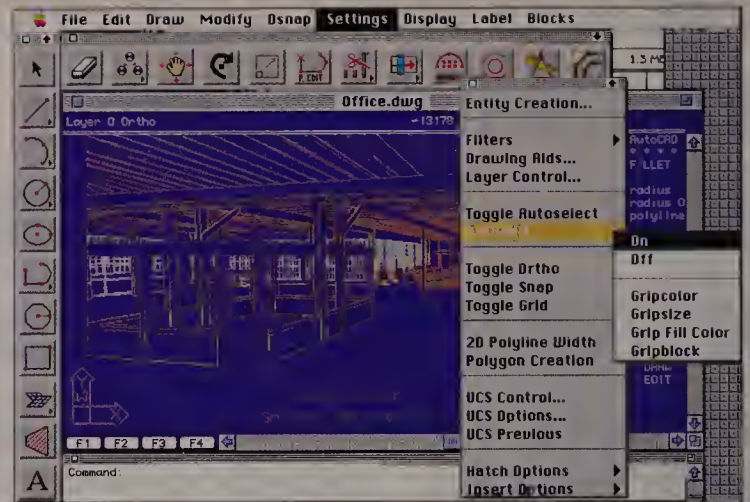
Unfortunately, Release 11 for the Mac is not the full implementation of the GUI that Release 12—currently available only for the DOS platform—is. In fact, Release 12 for DOS is what AutoCAD Release 11 for the Mac should have been. Partly as a result, many third-party developers are ignoring Release 11 for the Mac, concentrating instead on adapting their products for Release 12. Since one of the strongest arguments for using AutoCAD is the wealth of third-party add-ons, developers' hesitancy to develop for Release 11 for the Mac is a serious drawback.

So What's New?

LONGTIME MACINTOSH USERS WILL find many of AutoCAD's new capabilities old hat, and DOS die-hards may think these features are fluff, but they do make AutoCAD much easier to learn.

The command-line interface is still there, but you can also use pop-up menus, icons, and dialog boxes to enter commands. Control-key (not ⌘-key) keyboard commands are consistent with the DOS version. AutoCAD Release 11 also includes an improved implementation of tear-off palettes, with well-designed icons that tear off from the Draw and Modify menus. You can rotate the palettes from a vertical to a horizontal layout with a mouse click and have pop-up submenus. AutoCAD now supports the Mac's Clipboard; you can cut and paste selected items from an AutoCAD drawing to the Scrapbook or to another drawing without sacrificing accuracy.

Release 11's best new features are Autoselect and Autoedit—essentially an implementation of familiar Macintosh drawing capabilities. Autoselect lets you select objects by clicking on them (shift-clicking to select more than one) or by holding down the ⌘ key and dragging a marquee around a group of items. Selected items display grips (Autodesk's term for handles) that enable the user to



Tear-Off Menu Palettes AutoCAD's new tear-off menus feature vertical or horizontal orientation with color icons and cascading hierarchical menus.

manipulate objects with the mouse or by applying a transformation command.

Release 11 for the Mac is binary-compatible with other platforms, so you can exchange drawings by trading floppy disks or over a network. Release 11 supports blocks (similar to library objects in other CAD programs) and external reference files, so that when you update an original block and its reference files, all drawings that use those files update automatically. This can be a real lifesaver for complex projects in workgroup settings.

AutoCAD's Advanced Modeling Extension (AME), an optional application, uses 3-D primitives such as cubes, cylinders, and cones to provide solids modeling. You can create complex objects by using Boolean operators to join 3-D primitives, or by revolving or extruding profiles. AutoCAD's floating-point precision makes models created with AME extremely accurate, and you can export their properties (volume, mass, center of gravity, and so on) to a spreadsheet, statistics package, or engineering program for further analysis. AME can be an invaluable tool; but to be used effectively, it requires at least 16MB of RAM, System 7, and for all practical purposes, a Quadra or a 68040 accelerator.

Reading Up

AUTOCAD'S DOCUMENTATION WEIGHS in at a hefty 14 pounds—pages enough to cure a roomful of insomniacs—and unless you are a DOS-manual devotee, be prepared for acronym hell. Only the installation manual (118 pages out of a total of 1620 pages of documentation) is tailored for Macintosh users. For \$3500 a copy, I'd like documentation that doesn't assume DOS literacy on my part—isn't that why I first switched to the Mac? Autodesk assumes you have strong dealer support, which typically includes installation and some training. Take my advice, have the *continues*

What Makes Our 11x17 Printer Better Than The Rest?



600 dpi, 800 dpi, 960 dpi, Speed, Flexibility, Upgradability and Support... oh yeah, Price.

When shopping for an 11x17 PostScript® compatible printer, we realize you have a lot of choices. And while many vendors lay claim to being the best, Xante prefers to leave the judging to you. We invite you to compare our printer with the rest. With the *Accel-a-Writer 8100*, you'll get...

11x17/A3 Printing - The large page size support will give you a new level of flexibility in page layout and printing.

True High Resolution - The *Accel-a-Writer 8100* supports true 600 x 600 dpi for incredibly sharp text and graphics. And you have the option to nearly double or triple the resolution with our 800 x 800 dpi and 960 x 960 dpi upgrades.

High Speed Printing - The *Accel-a-Writer 8100* is built for speed with the AMD 29000 RISC processor, 12 MB RAM, Xante's *Advanced Memory Management*, and Canon®'s 8 page per minute LBP®-BX laser print engine.

Flexibility - Sharing among Mac® and PC users is simple with simultaneously active AppleTalk®, Parallel and Serial interfaces. You'll get font flexibility with 35 Type 1 fonts plus the ability to download up to 30 more permanently on the controller with Xante's *Virtual Disk Technology*.

Best Price - The *Accel-a-Writer 8100* gives the highest quality in output, advanced printing technology and flexibility. But the best thing is you won't have to pay a premium. In fact, the *Accel-a-Writer 8100* is only \$3,995.

Quality Assurance Guarantee - Your purchase will be protected with toll-free customer support, a one year warranty and a 30-day unconditional money back guarantee. Compare, then call us directly.

Quality Assurance Guarantee

	Accel-a-Writer™ 8100	CalComp® CCL-600	NewGen® TurboPS 660™ B	QMS® 860 Print System
Standard Resolution	600x600 dpi	600x600 dpi	600x600 dpi	600x600 dpi
Optional Resolution	800x800 dpi 960x960 dpi	None	800x800 dpi	None
Standard RAM	12 MB	2 MB	12 MB	12 MB
Virtual Disk Technology	✗			
Enhanced Gray Scale	✗			
Price	\$3,995	\$3,995	\$5,495	\$4,595

Statistics as of 10/92

1-800-926-8839
Fax 205-476-9421



© 1992 XANTE Corporation. XANTE Accel-a-Writer is a trademark of Xante Corporation. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTE Corporation: 2559 Emogene St., Mobile, AL 36606, Post Office Box 16526, Mobile, AL 36616-0526 USA, Tel. 205-476-8189.



Circle 1 on reader service card

dealer install the software; if something goes wrong with the installation—and it will—you don't want to have to rely on the manuals.

New to Release 11 is a HyperCard help stack, accessed from the Apple menu. While it is an improvement over the previous command-line help module, the help stack does not take advantage of HyperCard's real power: graphics. Claris-CAD's help system is much more graphically oriented and effective; you can access information about any tool simply by selecting it and pressing the help key.

Third Parties?

IT IS IMPORTANT TO REMEMBER THAT AutoCAD is primarily a customizable, but very bare-bones, drafting engine. It owes its leadership in the DOS world in large part to a legion of third-party developers. An architect, for example, wouldn't want to use it to design a building without a third-party add-on architectural package. Unfortunately for third-party developers, Release 11's change to a true three-dimensional structure—with changes to the AutoLISP programming environment—makes it harder to provide Macintosh add-ons.

I did speak with two third-party developers who are supporting Release 11. One is Eclipse Software, whose Architectural Power Tools, Release 11, provides an architectural environment for AutoCAD, as well as animated walk-throughs of buildings. The other developer is Radius, which provides the critical acceleration you'll need if you intend to use AutoCAD Release 11 on a Mac II, IIx, or IIfx. Radius has developed both hardware and software acceleration solutions for Release 11 that will cure even the most severe case of Quadra envy.

Is It Ready for Prime Time?

FOR MOST ARCHITECTURAL AND ENGINEERING offices, the principal reason to use AutoCAD Release 11 for the Mac is its compatibility with the DOS world, where AutoCAD dominates the CAD market and where it is strongly supported by diverse third-party offerings. It is a very powerful program, but it is also expensive in terms of initial software cost, hardware requirements, and learning curve—especially compared with other CAD applications for the Mac. Release 11 for the Mac demonstrates Autodesk's commitment to supporting the Mac platform and becoming a major player in the Macintosh CAD arena. But nothing will demonstrate its commitment to the Macintosh user like getting Release 12 for the Mac out the door as soon as possible.

—DANIEL M. GONZALES

Publication-Management Software

JobTracker 2.02

PROS: Excellent reports; calculates schedules forward and backward. **CONS:** Inelegant interface; limited to 50 tasks per job; can't add tasks after entering jobs; can't recalculate backward scheduling based on new due date; cost tracking not well integrated. **COMPANY:** InfoSolutions (814/355-2983). **REQUIRES:** Mac Plus; 2.5MB of RAM; hard drive; System 6.0.3. Recommended: SE/30; 4MB of RAM. **LIST PRICE:** \$844; 10 users \$6670; JobTracker Light (one user, 15 active jobs) \$395.



JOBTRACKER IS A SCHEDULING AND project-management program designed specifically for publication management. It calculates schedules and costs, tracks job assignments, and maintains status information on multiple jobs of different types. Though it's optimized as a tool for production managers in book publishing companies (the cost-analysis system, for instance, includes a distinction between cloth and paper editions), JobTracker is widely adaptable to a variety of publishing projects, from sales materials to newsletters.

Departments, Groups, and Tasks

YOU BEGIN YOUR SETUP OF JobTracker by defining the departments (or people) who will be performing tasks. You might include the editor, copy editor, page-layout person, and art department; or you might be more specific and list people by name. Next, you define groups of jobs that have similar task lists—novels, illustrated how-to books, and textbooks, for instance.

The next step is to set up the task list for a group (see "Taken to Task"). This is where you name a task (copyediting, cover design, and so on), and set how long

it will take and who's responsible for it. This is also JobTracker's greatest failing: you can't have more than 50 tasks per job.

Like other project-management software, JobTracker uses the critical path method, so one task's start date can depend on the preceding task's completion date. You can specify that tasks are or are not on the critical path; if you change the completion date for a critical path task, projected dates for ensuing critical path tasks change accordingly.

Calculating Schedules

JOBTRACKER WILL CALCULATE SCHEDULES either forward or backward—figuring a beginning date for a job based on a due date, or an ending date based on a start date. Once you specify the completion date for any task, however, JobTracker resorts to forward calculations from that date. You can't recalculate the start date based on a new due date except by creating a new job.

Unlike other project-management software, JobTracker doesn't distinguish between milestones and tasks except by duration, so it's up to you to maintain that distinction when entering tasks. Once you've set up your task list and entered any jobs for a group, you can no longer add or delete tasks, though you can remove tasks from the job by making them nonrelevant. To create a job with a different task list, you need to create a new group (you can import the task list from another group and modify it, however).

In addition to scheduling, you can enter cost data for jobs, and JobTracker keeps track of it and reports actual versus projected costs. This isn't automatically calculated from hours spent by different departments, people, and contractors, however, so it's more like a stand-alone data entry and reporting module than an integrated cost-manager.

JobTracker Reports

THE BEST THING ABOUT JobTracker is the reports it provides. It doesn't do the fancy graphical Gantt charts that other project managers tout, but it provides much more useful textual reports than those programs: what's due from each department (or person) today or this week, what jobs are behind schedule, the status of all active jobs (what tasks have been completed, actual versus estimated dates, and so on), and costs for all completed jobs, among others.

Built in ACIUS's 4th Dimension (run-time version included), JobTracker doesn't show quite the polish that you'd expect from a program written in a lower-level language, but it manages its job com-

continues

Task name	Original dates	Estimated dates	Actual dates	Completion status	Comments
1 Initiate Chapter	8/25/92	0	8/20/92	0	
2 Develop outline	8/25/92	3	8/19/92	0	Robert's early
3 Review outline	8/27/92	4	8/25/92	0	Steve can beat this date
4 Write first draft	10/9/92	30	10/7/92	0	
5 Review first draft	10/23/92	10	10/21/92	0	
6 Write second draft	11/13/92	0	11/11/92	0	I think the chapter will be clean
7 Review second draft	11/25/92	0	11/23/92	0	No second draft necessary
8 Copy edit second draft	12/15/92	12	11/16/92	0	
9 Review copy edit	12/18/92	3	11/11/92	0	
10 Review & respond to edit	1/8/93	10	11/25/92	0	
11 Enter & proof copy write	1/14/93	4	12/3/92	0	
12 Prepare art list	1/18/93	2	12/7/92	0	
13 Outset art	1/21/93	3	12/10/92	0	
14 Create art list specs	2/4/93	35	12/31/92	0	
15 Get permissions	1/25/93	7	12/14/92	0	
16 Make pages	1/18/93	3	12/7/92	0	
17 Proof pages	1/20/93	2	12/9/92	0	
18 Enter page changes	1/21/93	1	12/10/92	0	
19 Proof page changes	1/22/93	1	12/11/92	0	
20 Imprint pages	1/26/93	2	12/15/92	0	

Taken to Task The Task Update dialog box is the heart of JobTracker. Here it's set up to track a single chapter in a book. It could also be set up to track a whole book, one issue of a serial, or a single brochure in a series of marketing materials.



Deep Inside Your Old LaserWriter Lurks A 600 x 600 dpi Superprinter

(You Just Have To Know How To Coax It Out.)

If you have an Apple® LaserWriter®, you already have the makings of a lightning fast, 600 x 600 dpi Superprinter. Don't let your current investment go to waste!

Just install an *Accel-a-Writer* controller and bring new industry leading technology to your old Apple LaserWriter or HP® LaserJet®. Print speedy, high resolution graphics without the expense of buying a brand new printer!

True 600 x 600 dpi Text and Line Art. Produce near-typeset quality output that is clearly suitable for camera-ready reproduction.

850 x 850 dpi equivalent gray scales. Now you can print smooth and detailed gray scale images. For example, you will now receive 197 levels of gray at an equivalent 60 line screen instead of the 25 available at 300 dpi.

Permanent Font Storage. In addition to the 35 resident fonts, Xante's own *Virtual Disk Technology* allows you to permanently store up to 30 more download fonts directly on the controller. You will also be able to change the fonts stored depending upon specific job requirements. For those of you who want to store more than 30 fonts,

the *Accel-a-Writer* also includes a SCSI port for an external hard drive.

Lightning Fast Speed. Print your documents up to 12 times faster with the *Accel-a-Writer's* AMD 29000 RISC processor. *Advanced Memory Management* and *Dual Page Processing* will also speed up your printing by allowing one page to be built while another is being printed.

Simultaneous Mac®/PC Printing. *ISI* (Intelligent Simultaneous Interfacing) allows you to print from Macintosh® and PC/compatibles at the same time, without having to use manual switches or software commands.

Quality Assurance Guarantee. Xante offers a full, unconditional 30 day money back guarantee along with a 2 year warranty! Coax the lightning fast, 600 x 600 dpi SuperPrinter from your old LaserWriter today.



	Accel-a-Writer	Apple LaserWriters	HP LaserJets
PostScript® Compatible	✖	✓	
True 600x600 dpi	✖		
850x850 dpi Equivalent Gray Scale	✖		
Virtual Disk Technology	✖		
RISC Processor	✖	✓ NTR	✓ IIIsi
Standard 6MB RAM	✖		
Simultaneous Interfacing (AppleTalk®, serial, parallel)	✖		

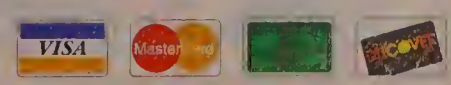
Ask About The *Accel-a-Writer* Line Of Laser Printers.

Statistics as of 9/92

1-800-926-8839
Fax 205-476-9421



© 1992 XANTE Corporation. XANTE Accel-a-Writer is a trademark of Xante Corporation. Other brands and product names are trademarks or registered trademarks of their respective holders XANTE Corporation: 2559 Emogene St., Mobile, AL 36606, Post Office Box 16526, Mobile AL 36616-0526 USA. Tel. 205-476-8189.



Circle 2 on reader service card

MacWAREHOUSE®

1-800-255-6227

ORDER
UNTIL
MIDNIGHT (EST)
FOR
OVERNIGHT
DELIVERY

OVERNIGHT
DELIVERY
ONLY \$3.00



Snooper Kit

⑦ Snooper provides truly comprehensive system diagnostic capabilities—everything from power supply and system clock, to the serial, modem and ADB ports are covered. Snooper detects hardware problems and sources of intermittent failures. It performs over 60 major component tests, prints the results, and logs errors. It also does benchmark testing and reports on system configurations to allow technicians to find and fix problems quickly. Includes a NuBus card to check errors even when the screen displays a "Sad Mac." Publisher: MAXA UT10277

\$159

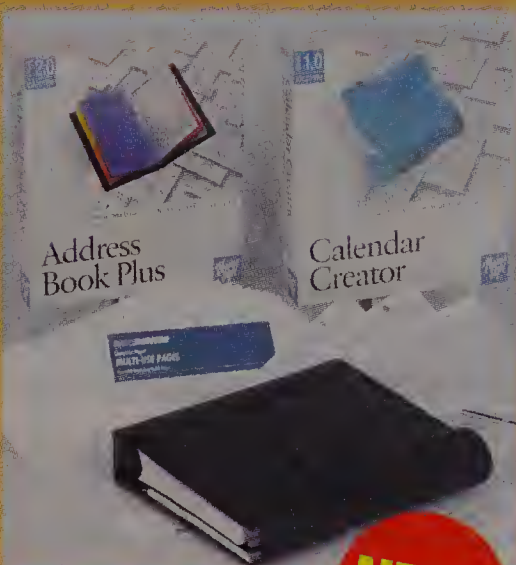


Morph™

⑦ The hottest image effect of the nineties is now available on the Macintosh! Morph™ smoothly transforms one image into another, creating dazzling images and effects. Whether it is last year's car model turning into this year's, or a futuristic cyborg villain disguising itself as the valiant heroine, this effect has astounded audiences all over the world. Morph™ is fast, easy-to-use, and is also QuickTime-savvy and System 7 savvy™. Publisher: Gryphon Software GRA0378

NEW!

\$95



PowerRunner™

⑦ PowerRunner combines Power Up's popular Calendar Creator™ and Address Book Plus™ software with the best-selling Day Runner® personal organizer. Calendar Creator handles everything from appointments to repeating meetings and holidays. Print your calendars in any format, from daily to yearly, then insert in your Day Runner binder. Address Book Plus produces top-quality address book pages, mailing labels, rotary file cards, envelopes, and unique InstaBooks™. Print double-sided address pages to fit Day Runner and other popular organizers. PowerRunners complete Day Runner Classic Edition 3-ring binder houses convenient 5 1/2" x 8 1/2" pages and includes a 45-page refill pack of sheet-fed paper for laser printers.

Publisher:
Power Up!
Software

\$99

NEW!

VocabuLearn/ce or PICTURE IT!™

⑦ VocabuLearn/ce® now available in three levels and Compact Disc. Expand your vocabulary base with thousands of new words and phrases! VocabuLearn/ce \$35ea. Compact Disc \$69ea. Full line available.

⑦ PICTURE IT!™ A highly interactive "bilingual" approach to a foreign language dictionary...Designed for beginning students, yet a perfect learning tool for everyone. Offers a simplified user interface, 8 megs of native pronunciation, over 1000 entries depicted with high resolution graphics. Expandable resource file for customizing word lists.

Publisher:
Penton Overseas
Full line available.

\$42ea.*



WristSaver Mini-MousePad



The WristSaver Mousepad's success prompted the WristSaver Mini-Mousepad. At only 5" wide x 8.5" long it is 3" smaller than the original. This is ideal for people who don't have room for a standard size pad. It works well because of the built-in

wrist support that raises your wrist about 1" off the desk surface. Your precious desk space is saved and your wrists will thank you. Manufacturer: LB Innovators

ACC0757: Navy
ACC0760: Gray
ACC0759: Black
ACC0758: Red

\$12ea.



Star Trek™: The Screen Saver or AfterDark Bundle*

Star Trek™: The Screen Saver

⑦ Beam aboard the Enterprise™ with Captain Kirk and Mr. Spock on a mission to prevent screen burn-in. Encounter trilling Tribbles, Klingon battlecruisers, and burrowing horta. This all new screen saver provides over 15 animated displays, password protection, SystemIQ and full compatibility with After Dark.

After Dark/More After Dark Bundle

⑦ The Ultimate Screen Saver Collection. Over 30 displays including Flying Toasters and Fish! With sound and password protection. More After Dark—Over 25 incredible new displays for After Dark. Publisher: Berkeley Systems UT10231

\$45*

Capitalist Pig

⑦ New! Animated business simulation game challenges you to build and run your own business under authentic economic conditions. Experience the challenge of business, scandals, fires, terrorists, and more, as you battle for billions—or bankruptcy. Make crucial business decisions every minute, and enjoy the results—or suffer the consequences. Packed with sound, animation, and fun, it draws rave reviews from would-be entrepreneurs of all ages. Capitalist Pig is the must-have "Game of the Year". You never knew business could be so simulating! Publisher: Pluma Software ENT0447



\$35

NEW!



Stuffit Deluxe 3.0 or Stuffit SpaceSaver*

⑦ Stuffit Deluxe 3.0 is the "Complete Compression solution". Only Stuffit Deluxe 3.0 can solve all your compression needs from archiving to transparent compression and includes Stuffit SpaceSaver. Stuffit Deluxe 3.0 is the fastest most efficient compression product available. Our new Add Match intelligently stuffs only the files that meet the criteria that you specify UT10302 \$69.

Stuffit SpaceSaver

⑦ Unlike other compression products, Stuffit SpaceSaver increases disk space (with lightning speed) without effort on your part. Have it work while your Mac is idle or when you say "Compress this for me." SpaceSaver provides complete on-the-fly compression in one package. SpaceSaver is also one of the least expensive, most productive and easiest to use compression products available.

Publisher:
Aladdin Systems, Inc.
UT10303

\$35*

FREE POWER!

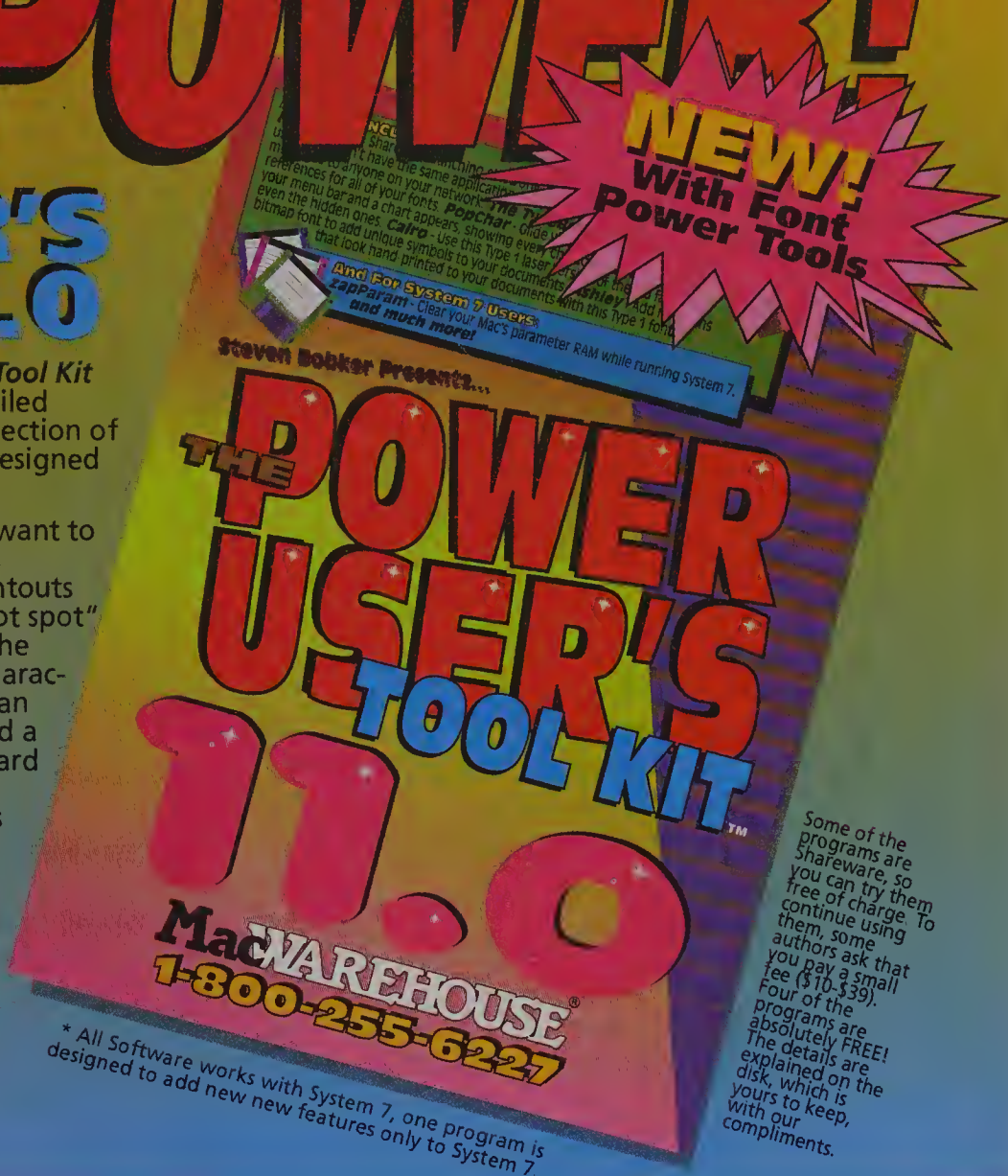
POWER USER'S TOOL KIT 11.0

Steven Bobker has stuffed version 11.0 of *The Power User's Tool Kit* with productivity enhancers and handy font software. Compiled exclusively for MacWAREHOUSE customers, this valuable collection of seven programs and fonts includes one program especially designed for System 7 users*.

Here's what awaits you -- *The TypeBook* is invaluable if you want to create hard-copy references for your fonts. *Print2PICT* makes self-launching "postcards" that are formatted electronic printouts from almost any application on the Mac. *PopChar* adds a "hot spot" to your menu that will show a chart of all the characters in the current font -- great for finding and pasting those hidden characters. *Cairo* and *Ashley* are Type 1 PostScript fonts that bring an old symbol bitmap favorite into the laser age and let you add a personal touch to your documents with notations that are hard to distinguish from hand printing. *Announce* sends instant messages to other users on your network, and *zapParam* lets you zap your parameter RAM under System 7.

The Power User's Tool Kit 11.0

is FREE when you order from MacWAREHOUSE. You pay only \$1.50 for shipping and handling. If you would like the disk, please ask for Item #AAA0028.



* All Software works with System 7, one program is designed to add new new features only to System 7.



Put more power into your PowerBook!

Get even more from your PowerBook with Connectix PowerBook Utilities (CPU), the first software utility created exclusively for your PowerBook. CPU extends your battery life! That keeps your PowerBook up and working longer. CPU protects your sensitive data whether your PowerBook is running, shut down or asleep. Custom menu bar displays show accurate battery level, remaining battery life, date and time. CPU gives you much more. Instant sleep and wake, LCD screen saver, keyboard shortcuts, cursor finder, mouseless menu control and over a dozen other enhancements make your PowerBook more effective. Get the power of CPU and put more power into your PowerBook today. Publisher: Connectix UT10297

\$49

Kaboom!

Add more than 150 wild and wacky sounds to your Macintosh with Kaboom! Each sound can be played every time you start up your computer, insert a disk, empty the trash, and more! Amaze your friends with the sounds of traffic jams, screams, and ringing phones-even famous dialogue from "Twilight Zone," "I Love Lucy," Ronald Reagan, and more! With Kaboom! you'll never have to settle for a simple "beep" again! A great gift idea! Publisher: Nova Development Corporation UT10281



\$29



I'm Kerry, call me at:

MacWAREHOUSE

1-800-255-6227

(1-800-ALL-MACS)
Inquiries: 908-367-0440
FAX: 908-905-9279
Call 24 hours a day,
seven days a week.
**NEW! Express
Customer
Service Number:**
1-800-445-9677
Midnight Express service
available weekdays.



Gallery Effects

1991 MacUser's Editors' Choice Award for Best Visual Resource Gallery Effects gives you the ability to automatically transform color, gray-scale, and bitmapped images into stunning works of art. Includes 16 master effects including Graphic pen,

Watercolor, and Charcoal, with thousands of customizable variations. Works in four different ways: Stand-alone application, Desk Accessory, Plug-In Filters (works directly with PhotoShop, SuperPaint, and others), and Animator (for applying effects to PICS animations) Publisher: Aldus GRA0279

\$129*



We carry more than 2000 Macintosh products, including all the latest releases and new versions. We pride ourselves on getting new products first. Just fill in the information requested below and mail the coupon. We'll start your free, one-year subscription to the MacWAREHOUSE catalog with the next issue.



FREE CATALOG SUBSCRIPTION MWM2
Free MacWAREHOUSE Catalog Subscription
1690 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Please enter my free, one-year subscription to the MacWAREHOUSE catalog

Name _____
Address _____ Apt. _____
City _____ State _____ Zip _____

(Expect to receive your first issue within 4-6 weeks).

MacWAREHOUSE®

1-800-255-6227

GUARANTEE
Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.

ACCESSORIES

CD Technology, Inc.	
ACC0763 CD ROM Caddy Replacement	49.
Apple Computer, Inc.	
ACC0335 Toner Cartridge LaserWriter Plus	99.
ACC0336 Toner Cartridge LaserWriter II	99.
Fuji USA	
BND0077 MF2DD 100PK Disks w/Labels	59.
BND0076 MF2HD 50PK Disks w/Labels	59.
Kensington	
ACC0623 AntiGlare Filter 12"	69.
ACC0460 Accessories Tilt/Swivel	23.
ACC0677 Notebook Traveler Deluxe	79.
LB Innovators (full line available)	
WristSaver MiniMouse Pad (various colors)	ea.12.
MediaMate	
ACC0744 3.5in. FlexPack10	10.
ACC0738 DataFinder 3.5" Disk Filing System	10.
Syquest Cartridges	
MED0035 44MB Removable Cartridge	75.
MED0071 88MB Removable Cartridge	139.
Targus	
ACC0482 Premier Leather Case	175.
ACC0734 Premier PowerBook Leather Case	149.
ACC0675 Universal PowerBook Carrying Case	69.

BUSINESS & PRESENTATION

A Lasting Impression	
ResumExpert: MS Word, Cover Letters, Manager, Sales & Marketing, Students, Computer Science & Engineering, Financing & Banking	ea.49.
Abacus Concepts	
STA0032 StatView 4.0	369.
STA0010 StatView SE+Graphics 1.03	219.
STA0028 StatView Student	75.
STA0030 SuperANOVA	369.
After Hours Software	
DateBook or TouchBASE 2.0	ea.79.
Aldus	
BUS0066 Persuasion 2.1	325.
Attain Corporation	
BUS0211 IN CONTROL 1.1	89.
CE Software	
GRA0070 CalendarMaker 4.0	31.
Chena Software, Inc.	
BUS0250 Fair Witness 1.2	189.
Chipsoft	
FIN0160 MacInTax'92	Call.
Claris	
BUS0201 ClarisWorks w/free Quicken	199.
Decisioneering, Inc.	
BUS0210 Crystal Ball 2.0	149.
DeltaPoint	
BUS0187 DeltaGraph Professional w/calculator	199.
Diamante	
BUS0180 Control Classic 1.5	299.
Fisher Idea System, Inc.	
BUS0168 IdeaFisher 2.0	379.
JAM Software	
DAC0033 SmartAlarms 3.1 Plus Pack/Appt.Diary	89.
Kaetron	
BUS0218 FlowChart Express	93.
BUS0100 TopDown 3.0	199.
Lotus Development Corporation	
BUS0188 Lotus 123 for Macintosh	339.
SID0004 Lotus 123 Competitive Upgrade	99.
Meca	
FIN0039 Managing Your Money 5.0	39.
Microsoft	
BUS0223 Microsoft Excel 4.0	295.
UPG0010 Microsoft Excel 4.0 Upgrade	99.
DAT0047 Microsoft FoxBASE+Mac 2.01	309.
BUS0181 Microsoft Project 3.0	445.
BUS0186 Microsoft Schedule+ 5 Pack	125.
BUS0243 Microsoft Works 3.0	159.
BUS0241 The Microsoft Office 2.5	475.
BUS0269 PowerPoint 3.0	Call.
Occam Research	
BUS0233 Muse	469.
Palo Alto Software	
FIN0116 Business Plan Toolkit 4.0	99.
Power Up	
BUS0153 Address Book Plus 2.0	63.
BUS0073 Calendar Creator	44.
Round Lake Publishing	
Legal LetterWorks or Sales	ea.45.
Softsync Publishing	
FIN0048 Accountant, Inc. 3.0.1	335.
Teleware, Inc.	
FIN0087 M.Y.O.B. 3.0	139.
Visionary Software	
BUS0190 First Things First 2.1.2	45.

COMMUNICATIONS & NETWORKING

Apple Computer, Inc.	
NET0250 AppleShare 3.0	969.
COM0131 AppleTalk Remote Access	165.
CDM0126 Macintosh PC Exchange	69.
CE Software	
COM0101 QuickMail 2.5.1 (15 users)	249.
Dayna Communications, Inc.	
NET0125 DaynaPORT E/Z	269.
NET0076 DaynaPORT E/SE	149.
Ex Machina	
COM0111 Notify! 1.1 Personal Edition	109.
Farallon™ Computing	
NET0007 PhoneNET® Plus, SE & II	31.
NET0019 PhoneNET StarController®	899.
NET0122 Timbuktu® 4.0.3	129.
NET0034 Timbuktu/Remote® 3.0	129.
FreeSoft	
COM0060 White Knight V.11	85.
Insignia (Full line available)	
UTI0174 AccessPC 2.0	60.
COM0108 SoftAT 2.5	299.
CDM0107 Soft PC Universal 2.5	195.
Hayes	
COM0095 HayesConnect 3.0	75.
Shiva	
NET0246 LANRover/L	599.
Synergy	
CDM0003 VersaTerm Pro 3.6	177.

TechWorks

NET0133 GraceLAN 2.0 50user	279.
White Pine Software	
COM0114 Mac 320VT320 Emulator	95.

DESKTOP PUBLISHING

Aldus	
DTP0072 PageMaker 4.2	495.
UPG0003 PageMaker 4.2 Upgrade	99.
DTP0080 Personal Press 2.0	99.
Quark, Inc.	
DTP0071 XPress 3.1	549.

DISK DRIVES & BOARDS

Mass MicroSystems	
DRI0253 DataPak 45MB Removable	589.
Peripheral Land, Inc.	
OIR0375 Infinity 88 Removable single	729.
DRI0115 Infinity Turbo 40 Meg Removable	599.
PowerUser®	
DRI0499 100 Meg Drive	499.
DRI0533 20 Meg External Hard Drive	299.
DRI0550 80 Meg Drive	449.
DRI0551 40 Meg Hard Drive	349.
DRI0494 Pro 105 MB Drive(Quantum LPS)	499.
DRI0546 Pro 210 MB Maxtor Drive	749.
DRI0549 Pro 40 MB Drive	379.
BND009444MB Syquest Removable	499.
BND009588MB Syquest Removable	699.
SuperMac Technologies	
DRI0437 Spectrum/8.24 PDO	899.
DRI0516 Spectrum/24 Video Mac II Card	799.
DRI0547 Spectrum Series III Accelerator Card	449.
OIR0440 Spectrum/8si	539.

EDUCATIONAL & ENTERTAINMENT

Artworx	
ENT0262 GailQuest	19.
ENT0461 Bridge 7.0	35.
Baseline Publishing	
ENT0403 Talking Moose/Cartoon Carnival 4.0	23.
Broderbund	
CDR0042 Just Grandma and Me CDROM	35.
GRA0268 Kid Pix 1.2	35.
Centron Software, Inc.	
ENT0329 BlackJack Strategy Tester/BlackJack Ace	65.
ENT0289 CasinoMaster Deluxe Color Version	45.
ENT0440 Crossword Creator	39.
HyperGlot Software Company	
Word Torture: Spanish, French, German, Russian	35.
MECC	
ENT0381 The Oregon Trail	29.
Number Munchers or Word Munchers	ea.19.
Nordic Software	
EDU0276 Word Search Deluxe	35.
EDU0142 Preschool Pack 2.0	35.
Opcode Systems, Inc.	
MUS0107 Audioshop	65.
Optimum Resource, Inc.	
EDU0355 Stickybear's Reading Room	35.
Passport Designs, Inc.	
MUS0049 Encore 2.5	379.
MUS0105 MusicTime for Mac	169.
Penton Overseas (Full line available)	
Picture It! Level I: Spanish, German, French, Italian	ea.42.
VocabuLearn/ce Level I, II or III: French, German, Hebrew, Italian, Japanese, Russian or Spanish	ea.35.
Personal Training Sys.(Full line available)	
Excel 4.0, Word 5.0, Quark XPress 3.1	ea.49.
Pluma Software	
ENT0447 Capitalist Pig 1.1	35.
Software ToolWorks	
MUS0092 Miracle Piano	349.
XOR Corporation	
ENT0274 MacGolf Classic 1.1	52.
Zondervan Publishing House	
MacBibleGreek or NIV	ea.79.
BOK0021 MacBible King James Version	79.

FONTS & APPLICATIONS

Adobe Systems, Inc. (Full line available)	
FDN0351 Adobe Type On Call 2.0	59.
FDN0295 Adobe Type Reunion	41.
FON0439 Adobe TypeStyler 2.0 w/ATM	127.
Font Bank	
FON0438 Postscript Display Typefaces	95.
Softkey Software	
FDN0480 KeyFonts	49.
Wayzata Technology	
FDN0484 Font Fun House CDROM	35.

GRAPHICS & MULTIMEDIA

Abracadabra	
CAD0032 Design Your Own HomeArchitecture	ea.59.
GRA0339 Sprout!	45.
Adobe Systems, Inc.	
GRA0371 Adobe Premiere 2.0	439.
UPG0021 Adobe Premiere 2.0 Upgrade	149.
DTP0054 Illustrator 3.2 (w/ ATM 2.0)	369.
GRA0191 PhotoShop 2.0	549.
Aldus	
GRA0092 Digital Darkroom 2.0	259.
GRA0305 FreeHand 3.1	395.
GRA0279 Gallery Effects Vol. I	129.
GRA0354 IntelliDraw	199.
GRA0131 Super 3D 2.5	325.
HYP0027 SuperCard 1.6	195.
GRA0112 SuperPaint 3.0	99.
Apple Computer, Inc.	
GRA0347 QuickTime Starter Kit	155.
Broderbund	
MacGlobe or MacUSA	ea.45.
Claris	
CAD0029 ClarisCAD 2.0	599.
GRA0350 MacDraw Pro 1.5	275.
SID0014 MacDraw Pro 1.5 Tradeup	95.
Deneba	
GRA0280 Canvas 3	259.
DiVA Corporation	
GRA0328 DiVA VideoShop	395.
Dream Maker	
GRA0105 Clippures Vol. 1 Business Images	69.

Fractal Design

GRA0323 Painter 1.2	259.
Kodak	
GRA0381 AccessCD	35.
GRA0380 Renaissance	499.

Metro Image Base (Full line available)

GRA0277 MetroImageBasics	35.
Postcraft	
DTP0062 Effects Specialist	99.
DTP0063 Layouts for PageMaker	75.

Ray Dream

GRA0291 JAG	79.
-------------------	-----

Softsync Publishing

EDU0346 Expert Astronomer	29.
GRA0318 ExpertColor Paint	29.
Expert Home Design or Office Design	ea.29.
GRA0367 Expert Landscape Design	29.

Specular International

GRA0303 InfiniD 2.0	645.
---------------------------	------

T/Maker

GRA0317 FaxMania, Business Fax Cover Sheets	25.
---	-----

Thought i Could

GRA0302 Wallpaper	37.
-------------------------	-----

Virtus

GRA0278 Virtus WalkThrough 1.11	309.
---------------------------------------	------

INPUT & OUTPUT

Appoint, Inc.	
INP0219 Mouse Pen Pro Mac ADB	65.
INP0220 Thumbelina Mac	65.
Caere	
INP0205 Typist Plus Graphics	459.
CoStar	
INP0196 AddressWriter Envelope Printer	479.
INP0194 Stringray Platinum	89.
Datadesk International	
INP0174 Mac 101E Keyboard Platinum	129.
INP0183 Mac 101E w/Keys 2	149.
Kensington	
INP0231 Turbo Mouse (SE or II) 4.0	109.
INP0221 NoteBook KeyPad	105.
Microtek	
INP0246 Microtek ScanMaker II	959.
INP0162 TrueLaser Printer	1399.
Microtouch	
INP0084 The UnMouse	159.
Mouse Systems	
INP0132 Little Mouse ADB	74.
INP0163 A3 Mouse	85.
INP0199 A3 Trackball	75.
Sophisticated Circuits	
ACC0535 PowerKey 2.0w/ QuickKeys Lite	75.
INP0232 PowerPad	79.
SuperMac	
MON0224 20" SuperMatch Color Display	1699.
ThunderWare	
INP0116 LightningScan 400	359.
INP0189 LightningScan Pro 256	499.

UPGRADES & ACCELERATORS

Computer Care, Inc.	
DRI0336 Mac Rescue w/SCSI Port	139.
CHP0074 BookRAM 6S for PowerBook	479.
DayStar Digital	
Universal PowerCache 33 MHz	599.
Universal PowerCache 33 MHz w/882	749.
Universal PowerCache 40 MHz	839.
Universal PowerCache 40 MHz w/882	1029.
DRI0421 FastCache IIsi (64K)	299.
DRI0500 FastCache Quadra 700/900	279.
PowerUser®	
CHP00114 Meg SIMMs 80ns	139.
CHP00131 Meg SIMMs 100ns	45.
CHP00662MB PowerBook 100/140/170 Upgrade	149.
CHP00674MB PowerBook 140/170 Upgrade Kit	259.
CHP00686MB PowerBook 140/170 Upgrade Kit	359.

MODEMS & FAX

Global Village (full line available)	
PowerPorts	Call.
Hayes	
MDD0065 Bundle 9600 ULTRA SmartModem	679.
MDD0077 OPTIMA 96 for the Mac	399.
MDD0096 OPTIMA 24 Bundle	149.

PowerUser®

MOD0062 24/96 Mini Send/Receive Fax Modem	159.
MOD0043 2400 Mini Modem	89.
Prometheus	
MOD0084 Home Office 24/96	259.
MOD0085 Ultimate Home Office 24/96	489.

UTILITIES & PROGRAMMING

Abbott Systems, Inc.	
UTI0236 Calc+	39.
UTI0113 CanOpener 2	59.
Advanced Software	
UTI0291 InTouch 2.0	59.
Aladdin Systems	
UTI0302 StuffIt Deluxe 3.0	69.
UTI0303 StuffIt SpaceSaver	35.
Alsoft	
UTI0269 Alsoft Power Utilities Bundle	65.
Apple Computer, Inc.	
LNG0058 AppleTalk for Programmers	219.
LNG0057 Mac Programming Fundamentals	449.
SYS0001 System 7 Personal Upgrade Kit	79.
SYS0003 At Ease	55.
ASD Software, Inc.	
UTI0135 FileGuard 2.7	139.
UTI0130 FileGuard 2.7 Office Pack 5	479.
Baseline Publishing	
UTI0187 Init Manager 1.1	34.
UTI0183 ScreenShot 1.2	34.
Berkeley System Design	
UTI0119 After Dark 2.0	29.
UTI0231 More After Dark/ After Dark 2.0 Bundle	45.
Caere	
UTI0293 OmniPage Direct	269.
UTI0202 OmniPage Professional	649.
Casa Blanca Works, Inc.	
UTI0273 Drive 7 2.2	49.
Connectix	
UTI0297 CPU Connectix PowerBook Utilities	49.
Dantz Development	
UTI0246 DiskFit Pro	74.
Fifth Generation	
UTI0087 SuitCase 2.1	55.
FWB, Inc.	
UTI0259 HardDisk ToolKit 1.1	125.
Insight Development	
UTI0098 MacPrint 1.3	95.
Kent Marsh	
UTI0262 Night Watch II	89.
MAXA Corporation	
UTI0277 Snooper Kit	159.
Microcom	
UTI0093 Virex 4.0	69.
MicroMat Computer Systems	
UTI0285 MacEKG 2.0	99.
Nova Development Corporation	
UTI0281 Kaboom!	29.
Salient	
AutoDoubler or DiskDoubler 3.7	ea.49.
Symantec Corporation	
UTI0151 Norton Utilities for the Mac 2.0	95.
UTI0214 Symantec Antivirus for Mac 3.0 (SAM)	65.
Teknosys	
UTI0251 Help 1.02	89.
TGS Systems	
LNG0053 Prograph 2.5 Compiler Ver.	299.
UserLand Software, Inc.	
UTI0272 UserLand Frontier	189.
WORD PROCESSING	
Claris	
WRD0026 MacWrite II 1.1	89.
Microlytics	
SPL0017 Word Finder Plus 4.0	45.
Microsoft	
WRD0059 Word 5.1	295.
UPG0001 Word 5.0 Upgrade	125.
Softsync Publishing	
WRD0057 ExpertWriter	29.
T/Maker Co.	
WRD0051 WriteNow 3.0	149.
WordPerfect Corporation	
WRD0041 WordPerfect 2.1	289.
WordStar	
SPL0030 American Heritage Electronic Dictionary	55.

- All major credit cards accepted. No surcharge.
- Your credit card will not be charged until your order is shipped.
- If we ship a partial order, we pay the freight on the remaining portion.
- All U.S. shipments are insured at no extra charge.
- C.O.D. orders accepted (add \$6.00 including shipping) - \$1,000 maximum. Cash, money order, or cashier's check.
- Corporate purchase order accepted subject to credit approval.
- All products are covered by a 120 day limited warranty.
- Sales Tax: CT residents add 6%, NJ residents add 7%, Ohio residents add appropriate tax.

SHIPPING
• All orders add \$3.00 per order. We ship Airborne Express overnight unless UPS Ground delivers overnight. (Some rural areas require an extra day.)
• Orders placed by 12:00 MIDNIGHT (EST) (weekdays) for "in stock" items ship same day (barring system failure, ect.) for overnight delivery.
• C. O. D. orders ship via UPS (Blue Label if you are more than 2 days from us via UPS Ground). Charge is \$6 including shipping.
• Alaska, Hawaii, outside continental U.S., APO/FPO call 908-367-0440 for information.

*Defective software replaced immediately. Hardware replaced or repaired at our discretion.
**We regret that we cannot be responsible for typographical errors.

I'm Kerry, call me at:

MacWAREHOUSE®

1-800-255-6227

(1-800-ALL-MACS) Now works in Canada.

Inquiries: 908-367-0440 FAX: 908-905-9279 (NOTE NJ AREA CODE)
1690 Oak Street, P.O. Box 3031
Lakewood, NJ 08701

NEW! Express Customer Service Number:
1-800-445-9677

For faster service for existing customers our computers recognize incoming calls by the telephone number and instantly locate your records.



COMPUSERVE

You can now contact MacWAREHOUSE or place orders with us in the Electronic Mail on CompuServe. The MacWAREHOUSE GO code is GO MW.

As always, you'll get fast, dependable overnight service and you can leave messages for Kerry or any of our support staff.

**OVERNIGHT
DELIVERY
ONLY \$3.00**



CalendarMaker 4.0

⑦ Schedule a little time for the new CalendarMaker 4.0 from CE Software, Inc.! The grand master of presentation - quality calendars is now even better (great for dignified corporate calendars to beautiful personal calendars - quickly and easily.) New WYSIWYG capabilities, dozens of layouts, enhanced flexibility, color, import capabilities (graphics and text), personalized icons, floating notes, and much, much more, make it the best of its kind, and still at the same low list price. - This is just what the users have asked for. It is a definite must for anyone who publishes, creates or uses monthly calendars. A great holiday gift! **Introductory price expires Dec. 31, 1992. GRA0070**

**NEW
VERSION!**

\$31

From QuicKeys™ and DiskTop™ adding power to your desktop, to QuickMail™, helping you to communicate regardless of platform.

We can help you do whatever you do, better. How do we know this? Simple.

Improving your environment is our business™.

Publisher:

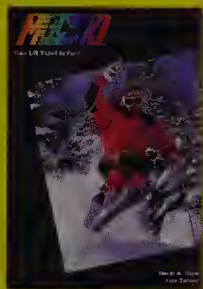


PowerPad Get 10-Key Power For Your PowerBook.

⑦ On the road or at your desk, PowerPad™ 10-key pad turns your PowerBook into a numeric powerhouse. Function and cursor keys at a touch. And customizable key layout that can match the extended Mac keyboard or a traditional 10-key. Powerpad's new desk accessory, 10Key Tape, combines the convenience of a calculator's paper tape with the ability to edit, cut & paste, print, and save. There's also an extra ADB port for adding a mouse or other device. A 24" replaceable cable and a hard cover that opens (shown above closed) to support the pad for easy use. **Publisher: Sophisticated Circuits, Inc. PowerPad with QuicKeys2 INP0233 \$119**

\$79

PowerPad INP0232



MacSki

⑦ Hit the slopes in sound and color with this challenging skiing simulator. Pick your ski type and choose your course. There are 20 different and challenging layouts from which you can select, or you can design your own. The program allows up to 256 different combinations of difficulty levels, snow condition, visibility, and wind speed. Watch

out for obstacles! MacSki includes Snowmen & penguins, Igloos & Snow Bunnies, and much more! Digitized sounds and color graphics put you in the middle of action.

Publisher:
XOR Corporation
ENT0330

\$39



Notebook Traveler Deluxe/ TouchBASE Bundle

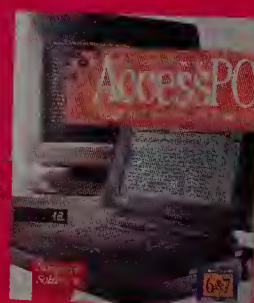
⑦ The easiest way to take your PowerBook with you and touch base with contacts while on the go! Introducing the Kensington NoteBook Traveler™ Deluxe carrying case and After Hours TouchBASE software bundle. The NoteBook Traveler Deluxe carrying case combines heavy duty construction with elegant design. Numerous storage features for all your PowerBook accessories in a top quality case constructed of 1000 denier black nylon with water-resistant coating. TouchBASE software features single field searches, ascending and descending sorts, zip code and telephone number formats, user-definable fields, check boxes, one-pass pasting to other applications, and label, envelope, address book, fax cover and report printing. **GREAT VALUE! Manufacturer: Kensington ACC0807**

\$99

AccessPC® 2.0

⑦ With AccessPC 2.0, your Macintosh can make MS-DOS files look just like Mac files, instantly. Pop any DOS floppy in your drive and in a couple of clicks, the PC files are on your Mac desktop, looking and acting perfectly Mac-like. Edit, copy, save, print, play with the numbers, print again, and give the PC people back their diskette. Access includes powerful Multi-Driver™ and Media Formatter™ utilities FREE. You get instant compatibility even with DOS removable cartridges and optical drives.

Publisher:
Insignia Solutions UTI0174



\$60

TouchBASE/DateBook Bundle

⑦ Schedule, organize and save with the TouchBASE/DateBook Bundle. TouchBASE lets you to store information about personal and business contacts, alternative phone numbers, plus customize the fields. Also allows you to print envelopes and mailing labels, including postal barcodes, and fax sheets covers. DateBook is the ultimate personal time manager for Macintosh. Instant access and advanced scheduling keeps you on top of your appointments and things to do. Shows your schedule in multiple formats including test, Gantt chart and time bar. DateBook's views enable you to see your schedule quickly in as much detail as you like.

TouchBASE/DateBook bundle comes with FREE Redux!

Publisher: After Hours Software BUS0253

**all
for
only \$99**



Business Plan Toolkit 4.0

⑦ Use Business Plan Toolkit to build plans you'll be proud to present to banker, buyer, or boss. It's complete with prompted textwriter, and good estimates of cash flow, P&L, ratios, sales, personnel plan, fully-linked financials, and business charts all clearly

explained in a manual that MacUser called, "excellent". Business Plan Toolkit takes you step-by-step with your own words. Supports Microsoft Excel, Works, WingZ, Resolve, and most Mac word processors. System 7.0 compatible. Rated 4 1/2 nice by MacUser. **Publisher: Palo Alto Software FIN0116**

5 stars 1/2

\$99

MacWAREHOUSE®

1-800-255-6227

ORDER
UNTIL
MIDNIGHT (EST.)
FOR
OVERNIGHT
DELIVERY

OVERNIGHT
DELIVERY
ONLY \$3.00

MacEKG 2.0

MacEKG can warn you of computer failure BEFORE it happens. EKG monitors over 250 aspects of your system—logging and comparing results each time you reboot. EKG features advanced chip-level tests that were only available to Authorized Apple Technicians until now. Using EKG's Reactivator to continuously reboot simulates several days of heavy use to quickly diagnose intermittent failures. EKG can automatically run at startup or shutdown—making sure you are the first to know if your computer has failed a test or slowed down.

Publisher: MicroMat UT10285



\$99

Infini-D 2.0

Create dazzling images with the power of Infini-D's Three-dimensional environment. The easy-to-use Infini-D, now in an awesome second generation! Infini-D 1.0 was the package that brought 3D graphics to the rest of us. Infini-D 2.0 combines this friendly interface with sizzling 3D power: Infini-D's incredible new shader and raytracer now can render scenes up to 500% faster! Instant conversion of EPS files into 3D objects, Infini-D's awesome metamorphosis capabilities, precise PICT mapping control, and extensive QuickTime support make Infini-D 2.0 the 3D package of choice for graphic arts and multimedia professionals.

Publisher: Specular International GRA0303



\$645

MacPrint 1.3



Use a Macintosh with non-Apple printers. Print Mac applications on HP Laserjet, Deskjet or compatible printers including all Series IIs, IIIs and the Deskjet 500. Prints text and graphics at the printer's maximum resolution.

Does not require PostScript. Cable is included. Publisher: Insight Development UT10098

\$95

Premier PowerBook Leather Case

A smaller version of the leading Targus Premier Leather Case. The Premier PowerBook Leather Case has been specifically designed for use with a notebook style computer.

Combines a luxurious, leather briefcase with a notebook computer carrying case. The zip-down workstation section features disk pockets, pen and business card holders, two pockets for miscellaneous items, and even a pouch for your glasses! Padded compartment interior dimensions are 14.5" x 2.5" x 12". Also available: Premier Leather Case which accommodates all PowerBooks. Interior Dimensions 17" x 4" x 13".

ACC0482 \$175.

Manufacturer: Targus ACC0734



\$149

Stickybear's Reading Room

Stickybear's Reading Room makes reading fun for kids from four to eight. This bilingual learning application lets kids switch between English and Spanish at any time. Reading Room uses many sound effects, stimulating graphics, and verbal reinforcement to entertain and stimulate children as they learn. For example, in the Word Bop game, a speech cannon "bops" pictures into words, then back into pictures. In Sentence Builder game, Reading Room reinforces and builds reading ability by animating the sentences kids create.

Publisher: Optimum Resource, Inc. ED10355



\$35



Virex 4.0

Virex is the ultimate solution to Macintosh computer viruses. The Virex application detects and repairs files infected by all known Macintosh viruses. The Virex INIT continuously monitors the computer to prevent infection and performs repairs instantly. Virex 4.0 provides comprehensive network features. An administrator can request a network-wide virus scan and schedule periodic scans to ensure that the network remains virus free. The administrator can also outdate Virex versions and automatically update them. Virex is updated frequently and all registered users receive one free update. Publisher: Microcom Inc. Also available 10 Pak UT10150 \$499. Single UT10093

\$69



White Knight V.11

The perfect low-cost solution to almost any Mac telecommunicator's needs. Offers the kind of power associated with

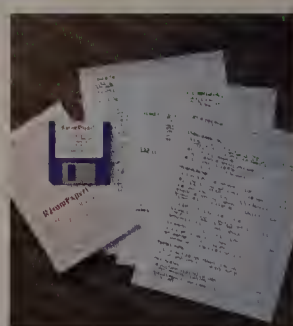
products costing hundreds of dollars more, but is easier to learn and more flexible. 270+ page user manual is geared to all levels of experience. Winner of 11 awards including MacWorld's World Class Software Award 1987-1991.

Publisher: FreeSoft COM0060

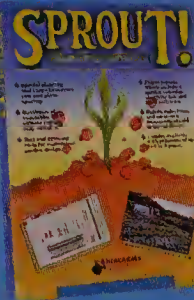
\$85

RésuméExpert

Create job-winning résumés quickly with RésuméExpert. Ten editions available by profession. Each edition features 40+ professionally written and fully-formatted résumé templates. Simple to use - just select a template and enter your own information. Now compatible with MS Word, MacWrite II and WriteNow. MacUser 10/89 awarded RésuméExpert 4 mice and raved about its "excellent" manual and writing tips. Also rated a top 200 software program by MacUser 12/89. Publisher: A Lasting Impression BUS0087



\$49



Sprout! or Design Your own Home:*

Sprout! is a complete computer planning tool for vegetable gardeners. Produces a graphic, scalable garden plan with correct plant and row spacing. Contains fully editable database of vegetables for 7 climate regions. Prints garden layouts, calendars, shopping lists, and reports. GRA0339

\$45

Use Design Your Own Home: Architecture, Interiors, or Landscape to create the right look for your home or yard. Create floor plans and building plans with structural details. Do individual room plans and kitchen/bath design. Then coassemble your dream house with graphic landscape plans. Interiors and Landscape programs generate 4 side views from top-view perspective. Sample plans included. Publisher: Abracadata

\$59 ea.*



POWER USER SIMMS ONLY

\$39*

FREE!

STEP-BY-STEP
VIDEO
INSTRUCTIONS**



A Power User Memory Expansion Kit will dramatically increase the power of your Mac. And our fast, reliable overnight service will have your Kit in your hands tomorrow!

MORE BRAIN POWER FOR YOUR MAC

Never again will you have to quit your word processor just to answer a question about a spreadsheet. Install extra memory and you can leave a letter open while you refer to last month's sales figures.

You can edit those monstrous scanner files with advanced graphics applications or develop your own custom HyperCard stacks. More memory means more power at your fingertips.

PLUG IN INSTALLATION

Adding memory doesn't require technicians in lab coats. You'll find installation at home easy when you follow our FREE** step-by-step installation video instructions. Just open your Mac, slide out the main circuit board and plug in your SIMMs.

WHAT DO I NEED?

Our helpful sales and technical staff is standing by to answer any questions and take the mystery out of memory upgrades. Memory cards come with one megabyte on each card and are usually sold in pairs — (2 @ \$39 ea.)

The chart explains exactly what you need to achieve the desired level of performance.

To open your Mac Plus, SE, and Classics you'll need a specially designed tool — it's available from us as part of a handy tool kit for just \$9.

WHAT YOU NEED TO KNOW

Memory chips come factory-installed on plug-in cards, called SIMMs (Single Inline Memory Modules). Each one megabyte SIMMs card holds eight top quality,

To upgrade a 4-socket Mac Plus or SE to this amount of memory	Do this: (Install in multiples of two only) SIMMs must be 150ns or faster
2 MB	Remove all four existing 256k SIMMs, install two 1 MB SIMMs, leave two sockets for future expansion.
2-1/2 MB	Remove only two 256k SIMMs, install two 1 MB SIMMs.
4 MB	Replace all four 256k SIMMs with four 1 MB SIMMs.
To upgrade a 2-socket Mac Classic II or LC to this amount of memory	Do this: (Install in multiples of two only) SIMMs must be 100ns or faster
4 MB	Install two 1 MB SIMMs
To upgrade a 2-socket Mac LC II to this amount of memory	Do this: (Install in multiples of two only) SIMMs must be 100ns or faster
6 MB	Install two 1 MB SIMMs.
To upgrade a 8-socket Mac II, IIx, IIcx, IIcx or SE/30 to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 120ns or faster
4 MB	Remove all four existing 256k SIMMs, install four 1 MB SIMMs, leave remaining sockets for future expansion.
5 MB	Keep existing 256k SIMMs, install four 1 MB in remaining sockets
8 MB	Remove all four 256k SIMMs, install eight 1 MB SIMMs
To upgrade a 4-socket Mac IISI to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 100ns or faster
5 MB	Install four 1 MB SIMMs.
To upgrade a 4-socket Quadra 700 to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 80ns or faster
8 MB	Install four 1 MB SIMMs.
To upgrade a 16-socket Quadra 900 to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 80ns or faster
4 MB	Install four 1 MB SIMMs.
8 MB	Install eight 1 MB SIMMs.
12 MB	Install twelve 1 MB SIMMs.

memory chips. We carry chips by all the major manufacturers like Texas Instruments, Intel and Samsung.

Prices can vary a lot, based on quality, speed and demand. At press time our price for 1MB, 120ns SIMMs is \$39.

Please call for the very latest prices and availability. Our sales staff will tell you what you need and help you make your choice an easy one.

SPEED

Do you need 80, 100 or 120 Nanosecond (ns) chips? Nanoseconds are billionths of a second, so an 80 ns chip responds faster than a 100ns chip. The original Mac used relatively slow 150ns memory chips. The 68020 processor needs 120ns (or faster) chip, and the 68030 Macs like the speedier model.

OVERNIGHT DELIVERY

Install a MacWarehouse Expansion Kit and working with your Mac will never be the same! Call us now. We'll help you select just the right Memory Upgrade, and we'll ship it overnight for just \$3.

CHP 0012 120ns SIMMs.....\$39

MacWAREHOUSE®

1-800-255-6227

Overnight Delivery Only \$3.00!

Call 24 hours a day, 7 days a week

© 1992 MicroWarehouse Inc.

MACWAREHOUSE 30-DAY MONEY BACK GUARANTEE

If, for any reason, you are dissatisfied with your Power User Memory Kit, you may return it for a full refund within thirty days of purchase. All you have to do is call us for a return authorization number and return this product, postage paid, in its original condition, with the original packaging and documentation.

TWO YEAR WARRANTY.

MacWarehouse also guarantees its Memory Kits against manufacturer defects for two years from the date of purchase. We will repair the item or replace it at our discretion.

* SIMMs prices vary. Call for latest information.

** Limited Offer! Free video with purchase of 2 or more SIMMs

MWM2P

Page layout that's easier than word processing!

ALDUS PERSONAL PRESS 2.0

ONLY \$99

You want all your documents to look polished and professional. You've seen how graphics and charts can jazz up those otherwise dull memos and reports. But trying to do page layout with your word processor is almost impossible. And high-end page layout programs take too much time and effort. Introducing Personal Press 2.0 — the first page layout software that does it all for you — automatically!

"Intelligent" Templates guide you through the whole process.

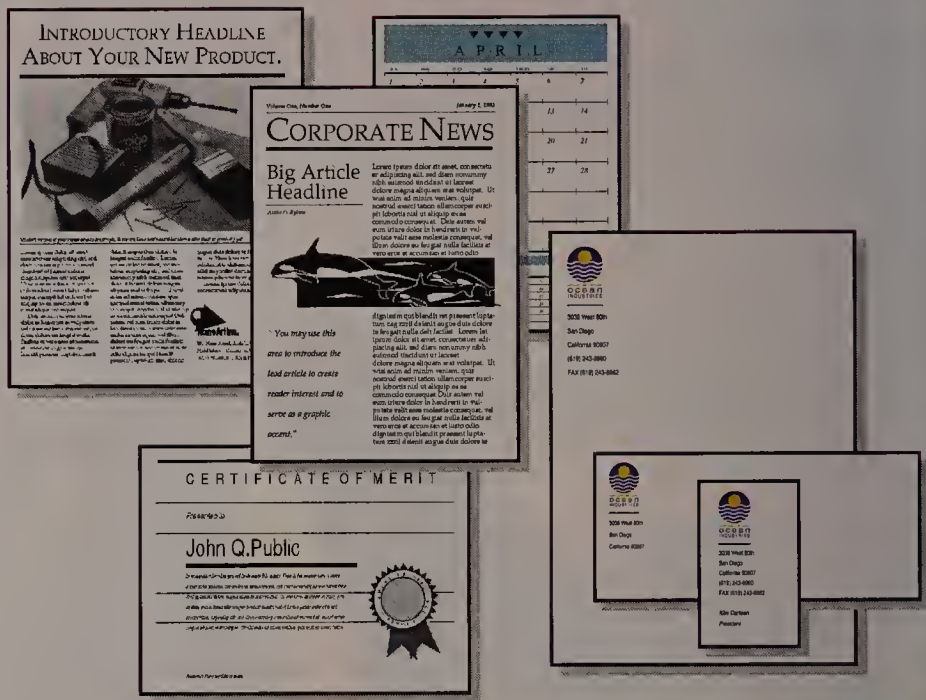
Create a publication that's perfect for your needs in a matter of minutes with Personal Press. Choose from a wide selection of professionally-designed, "intelligent" templates for newsletters, forms, memos, flyers, brochures, greeting cards, and more. The templates take care of everything — headlines, tabs, indents, image cropping, text size and style, even table of contents. The templates also fine tune the document for you, so it's clean, professional, and ready to print. Plus, each template includes several variations, so you can create a custom look without spending a lot of time or effort.

Personal Press does the work, so you don't have to.

Use the Copy Fit command and Personal Press will reformat your text to fit in the space you designate. AutoFlow eliminates the guesswork because it adds pages to your document as necessary. Interactive Graphic Previews show you what will happen before it happens, and provide constant, interactive feedback so you can avoid mistakes and work more efficiently. Text Wrap automatically wraps text around text and graphics of any size or shape. And with the incredible Aldus Additions, performing special tasks, such as creating drop-cap letters, pull quotes or bullet text, is fast and automatic.

But if you'd really rather do it yourself ...

Personal Press 2.0 gives you powerful tools and advanced features that are easy to learn and use. There's a full-featured word processor with a 100,000 word spelling checker and 660,000 synonym thesaurus. Import text and graphics and rotate them freely for just the right look. Create various line styles, including hairline and custom widths. Adjust the brightness and contrast of your grayscale images. Preview, crop, scale, and place frames from QuickTime movies right into your document. And much, much more.



Outstanding printing and output capabilities.

With Personal Press, your documents will really look great in print! Output to the most popular Mac printers, including high-resolution black and white and color QuickDraw and PostScript printers. Rotated text prints at the highest resolution possible, and your grayscale images will come out looking clean and crisp. Personal Press will even print spot color separations.

Personal Press 2.0 — Makes you look like an expert!

DTP 0080 FaxFACTS 2502

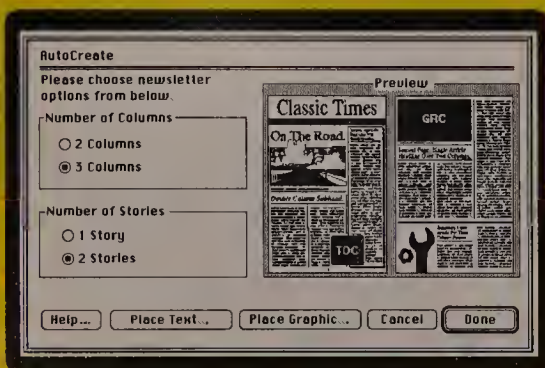
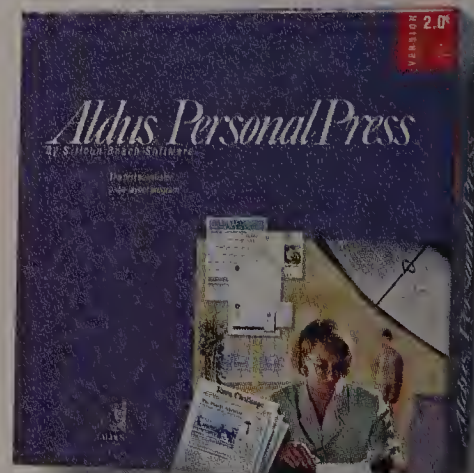
Publisher: Aldus

Suggested Retail: \$199

System requirements: Mac Plus or higher (including PowerBook family and Quadra); System 6.0.3 or later (6.0.5 or later recommended); 1 MB RAM (2 MB recommended); hard disk drive.

Aldus and the Aldus logo are registered trademarks and Personal Press is a trademark of Aldus Corporation.

\$99



The AutoCreate dialog box lets you see how your publication looks as it's being built.

PERSONAL PRESS 2.0 MAIN FEATURES

- "Intelligent" Templates help you create, assemble and print professional-quality documents with ease
- Full Featured Word Processing with 100,000 word spelling checker, 660,000-synonym thesaurus, search and replace, and magnification of 10% - 400%
- Interactive Graphic Previews show you what will happen before it happens
- Aldus Additions make special tasks, such as creating drop-cap letters, pull quotes and bullet text, fast and automatic
- Copy Fit automatically adjusts text to fit the space you designate
- Text Wrap lets you easily wrap text around text and graphics of any shape
- Free Rotation of text and graphics
- Image Controls let you adjust brightness or contrast of grayscale images
- Drawing and Manipulation Tools give you added flexibility
- On-line Help as well as dimmed-menu help
- Imports and exports in the most popular Macintosh formats
- System 7 Savvy features, including Balloon Help, Apple Events, Subscribe, TrueType, 32-bit Addressing, QuickTime Movie Support, and Virtual Memory

A whole new way to draw!

Aldus IntelliDraw Only \$199

When a design idea strikes, you want to be able to get it down quickly. Speed, flexibility, and precision are the keys. And with Aldus IntelliDraw, they're just the beginning. Refining and experimenting with your images is a snap, too. Because Aldus IntelliDraw's standard and smart drawing tools are designed for instantly exploring "what-if" scenarios. IntelliDraw is a whole new way to draw.

The tools you know, and the tools you need

Aldus IntelliDraw starts with a complete set of the standard drawing tools you already know and use, but it extends your creative capabilities by greatly speeding up the drawing process. "Intelligent" features make it easy to create dynamic drawings in which the objects stay aligned, distributed, or connected the way you want.

Create, refine and explore your ideas

Spontaneous experimentation, which used to take hours, can now be performed in minutes with IntelliDraw. Link objects in your drawings so they respond to changes automatically. Create simple animations and slide shows you can update "on the fly." Perform complex drawing operations with a click of the mouse. IntelliDraw provides a fast, intuitive tool for producing the graphics you need — almost as quickly as you can visualize them.

Look at ALL the bonuses you get with IntelliDraw!

Collections of high-utility images, formatted for rapid browsing

Intelligent templates for key business uses:

• Charting • Space Planning • Forms • Layouts • Presentations

How-to video tape, chock full of special tips, tricks and techniques

Aldus IntelliDraw

GRA 0354 FaxFACTS 3827

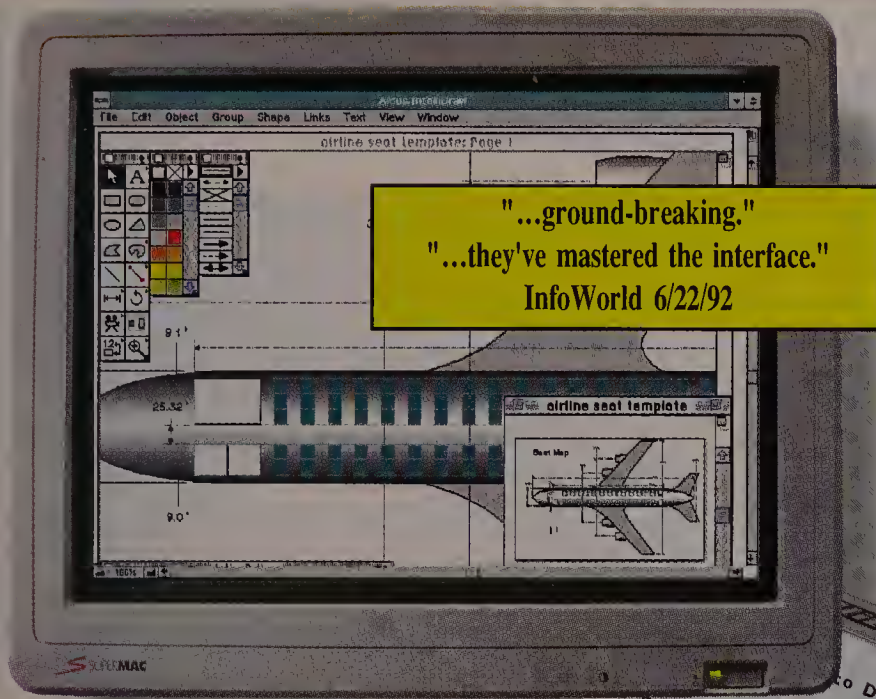
Publisher: Aldus

Suggested Retail: \$299

\$199

Recommended system requirements: Mac SE/30 or higher; 4 MB RAM; System 7 or later; hard disk drive; Adobe Type Manager 2.0 or later.

Aldus and the Aldus logo are registered trademarks and IntelliDraw and Gallery Effects are trademarks of Aldus Corporation.

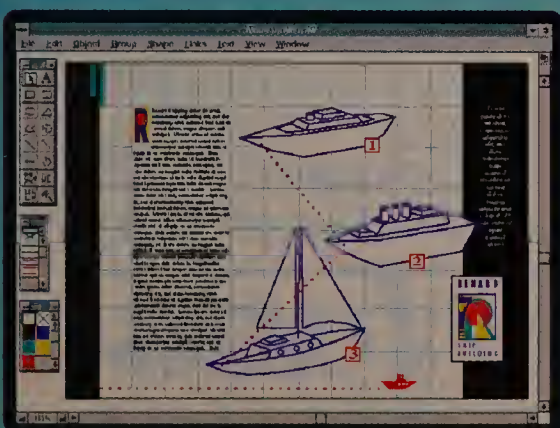


"...ground-breaking."
"...they've mastered the interface."
InfoWorld 6/22/92

IntelliDraw's special tools provide time-saving shortcuts, so detailed technical drawings or space plans are a snap.

STATE-OF-THE-ART FEATURES MAKE ALDUS INTELLIDRAW A MORE INTELLIGENT CHOICE

- Complete set of drawing tools let you perform all tasks in a familiar environment
- "Smart" graphic objects easily link elements for more efficient revision
- Full text capabilities give you all the options you need for labeling your layouts, charts, and diagrams
- Create "Symbols" with clones of any graphic (edit one master and all clones change automatically)
- Symmetrize and Connect tools make it incredibly easy to create symmetric shapes and connect new shapes to existing objects
- Includes intelligent templates, clip art, and textures that are ideal for charting, space planning, forms, layouts, and presentations
- "Sticky" connectors let you use lines that stretch, rotate, or remain rigid to keep objects connected, enabling a more dynamically interactive drawing environment
- Use dimension lines to quickly create dimensioned drawings, such as space plans, technical illustrations, cross-sections, and more
- Powerful shape editing lets you create complex shapes faster than any other method, with true cutaway, see-through "holes"
- Cross-platform capabilities allow seamless file sharing with Microsoft Windows IntelliDraw users



Intelligent tools, such as the Connect tool, let you explore "what if" scenarios to your heart's content — the quick and easy way.

Call macWAREHOUSE at 1-800-255-6227

Circle 150 on reader service card

Unlimited storage. Unbelievable price.

Introducing the Bernoulli® MacTransportable 90 PRO.

BERNOULLI
MEANS SECURITY
FOR YOUR DATA

System 7. Quick-
Time. Graphics.

They eat storage.

And nothing handles storage
like the Bernoulli
MacTransportable 90 PRO
from Iomega®.

The best removable storage system you can buy.

Bernoulli is better than a
hard disk because it won't
fill up. You simply insert
another affordable 90MB disk.

It's better than conven-
tional removable storage
systems, too, because it was
built from the ground up to
be removable. No other
removable drive has
Bernoulli's 75,000-hour
Mean Time Between Failure
rate, Bernoulli's proven head-crash resistance,
and the industry's most rugged
disks—able to withstand an
eight-foot drop.

And it's better than
magneto-optical because
you get twice the perfor-
mance for half the price.

The lowest-priced Bernoulli for the Mac.

The latest entry in our com-
plete line of products for the Mac, the new
MacTransportable costs 40 percent less than
previous models. Plus, it comes complete with
an interface kit and 90MB disk. Advanced



Transportable, dual drive, and Quadra Insider
versions are also available.

Hard-disk performance.

Enhanced 90 PRO drives have a fast 18-msec
effective access time. That's as fast as a hard disk.

The most recommended drive.

Bernoulli is the only removable drive to receive
the Macworld World Class Award the last two
years. And it has also won the Publish Reader's
Choice award, making it the new choice in
desktop publishing. We have a 99% customer
satisfaction rate. And we're the only computer
company to win the Shingo Prize for excellence
in American manufacturing.

Call 1-800-374-8506†

Unfortunately, this ad isn't a Bernoulli. We're out
of space. So call for a
brochure. Because now
unlimited storage is at
an unbelievable price.

IOMEGA®
Makers of Bernoulli

**NEW
BERNOULLI.
40%
LOWER PRICES.
COMPLETE
SYSTEM.**



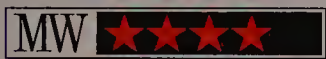
petently despite a lot of jumping between different screens. A demo version with some capabilities disabled is available from InfoSolutions for \$25.

JobTracker is not the project manager of my dreams, but it gets a lot closer than any of the half dozen management databases I've built over the years when trying to coordinate publishing schedules. Every production-management organization is different, but based on the excellent reporting alone, if you manage multiple publications I strongly recommend ordering the demo version and spending the hours it will take to see if JobTracker works for you.—STEVE ROTH

Grade-Book Programs

Grade Machine 5.0

PROS: Easy to use; report styles adaptable to any grade level; network capability. **CONS:** Disk must be sent to company for personalization. **COMPANY:** Misty City Software (206/828-3107). **REQUIRES:** Mac Plus; System 6.0.3. **LIST PRICE:** \$79; with Classroom Attendance option \$99; site licenses available.



Making the Grade 2.0

PROS: Easy to use; can print standard reports in Spanish; free upgrades on AppleLink. **CONS:** Copy protected; no network capability; manual lacks index. **COMPANY:** Jay Klein Productions (719/591-9815). **REQUIRES:** Mac Plus; System 6.0.3; second disk drive. **LIST PRICE:** \$99.95; volume discounts and school packs available.



FOR A TEACHER, ONE OF THE BENEFITS of having a computer is being able to automate the grade book. You could use a spreadsheet or database to record grades, but designing a comprehensive grade book takes time and expertise that most teachers just don't have. Grade Machine and Making the Grade, both developed by high school teachers, help you quickly set up electronic grade-books that print useful reports.

Grade Machine

VERSION 5.0 OF GRADE MACHINE REFINES the capabilities of previous versions, including adding flexibility to entering grades and printing reports. On screen, the grade book appears as four spreadsheet-style windows: Students, Scores, Assignments, and Summary (which lists students' cumulative points with percentages and letter grades for each grading

period). Anyone familiar with spreadsheet software can use Grade Machine without much difficulty. The manual is clear and concise—a quick read through the tutorial is all most users will need.

The program allows for ten grading categories, such as lab, homework, quizzes, and tests. A Grade Options dialog box lets you specify whether grades should be entered and displayed as points, percentages, or letters; and you can choose a grade-rounding scheme. You can also weight individual assignments, assignment categories, and grading periods. Grades can be scaled for mainstreamed special-education students.

Most of the setup work is finished when you've entered names, identification numbers, sex, and other miscellaneous data into the Students window. You can create up to 36 numbered comments and include these comments in letters to parents and in each student's record and progress reports.

Individual progress reports show each student's assignments, scores, and special comments. You can also print group reports for bulletin-board posting that show student assignments and grades with confidential ID numbers. Progress graphs display students' scores with line or bar charts; histograms show class score distributions, so students can see where they stand. You can even generate form letters that include individual student scores and your comments. Custom forms can be saved as templates and reused.

School districts and departments that have purchased a site license and have sent the disk to Misty City Software for "personalization" (a form of copy protection) can share a single copy of Grade Machine on a file server, with each teacher maintaining separate grade books. For classrooms equipped with Macs, the optional Classroom Attendance module is worth the additional \$29; you can quickly enter tardies or absences in the roll book or seating chart. The seating chart shows each student's name attached to a desk, which can be moved into any configuration; you can print the chart for substitute teachers or visiting administrators. Attendance records can be imported into progress reports.

Making the Grade

MAKING THE GRADE IS THE MACINTOSH version of the popular Apple II program Grade Busters 1/2/3. As with Grade Machine, the on-screen grade book looks like a spreadsheet with multiple windows. You can show assignments in as many as ten categories, and although you can enter grades only as points, you can display them as letters, percentages, or numerical

Grade Views Grade Machine and Making the Grade present grade-book data in slightly different forms, but both perform all the necessary grade-book functions and more.

values. All grades can be scaled for special-education students. The Teacher Aide function enables anyone to enter the grades but prevents people from tampering with student records.

Making the Grade offers dozens of options for printing reports, many modeled after traditional two-page spiral grade books. Class reports can include statistics for the group as well as for individuals, and confidential grade sheets can be printed for bulletin-board posting. A complete student report (called The Works) is several pages long, including a cover sheet, grading scale, assignments with grades, class rankings, graphs, and attendance pages. If this seems like overkill, you can create shorter reports.

The Daily Record enables you to record and display attendance information and comments. You can print this information for conferences or attach it to progress reports. Attendance data cannot be merged into the grade report.

Making the Grade is easy to learn. However, if you're already spreadsheet-literate, the friendly dialog boxes and helpful reminders may get in the way and slow you down. The three-ring manual is chatty, easy to read, and packed with illustrations, but its wordiness and lack of an index make it an awkward reference.

Final Grade

GRADE MACHINE AND MAKING THE GRADE have many features in common, and both are frequently revised and improved.

proved. Both import and export text and ASCII files, so you can move data back and forth between your grade book and your word processor, spreadsheet, or database. You can also transfer student information and assignments from one class to another and amend scores with your own comments.

Either program can save a teacher time, and since both come with a 30-day money-back guarantee, you might want to preview them to see which best matches your work style. Of the two current versions, we prefer Grade Machine because its interface is a little cleaner. Grade Machine also gets a nod for its networking capabilities, optional Classroom Attendance module with seating chart, and slightly less intrusive form of copy protection.—GEORGE BEEKMAN AND KAY STEPHENS

Network Connectivity

EtherPrint

PROS: Inexpensive solution for connecting single LocalTalk printer to Ethernet. **CONS:** Only supports printers; no management software; upgrades through ROM change only; no security; can't use LocalTalk routers. **COMPANY:** Dayna Communications (801/531-0600). **LIST PRICE:** \$499.



EtherPrint Plus

PROS: Connects up to four LocalTalk devices to Ethernet; serves as an inexpensive AppleTalk router. **CONS:** No management software; upgrades through ROM change only; no security; can't connect an additional router on AppleTalk zone. **COMPANY:** Dayna Communications (801/531-0600). **LIST PRICE:** \$649.



Ether Write

PROS: Connects up to six LocalTalk devices to Ethernet; serves as an inexpensive router; best price per port; good management software. **CONS:** LEDs can be confusing. **COMPANY:** Compatible Systems Corporation (303/444-9532). **LIST PRICE:** \$695.



MORE AND MORE, MACINTOSH networks are moving from LocalTalk to Ethernet. Ethernet offers faster performance; support for a larger network size; and better support for non-Macintosh systems, such as DOS PCs and workstations. But there are problems too: most

laser printers have no Ethernet port; and PowerBooks can't accept Ethernet boards, which makes connecting to Ethernet complicated and expensive.

Dayna Communications and Compatible Systems have developed some inexpensive "plug-and-play" solutions to the problem of connecting LocalTalk devices to Ethernet networks.

Installing the EtherPrint, EtherPrint Plus, or Ether Write is simple. You plug a LocalTalk device into a 6-by-8-inch box, attach the box to your Ethernet network, and turn on the box. LocalTalk printers are suddenly available to Ethernet Macintoshes.

Dayna's EtherPrint supports a single printer only. Compatible Systems' Ether Write and Dayna's EtherPrint Plus are more flexible. They handle multiple LocalTalk printers; systems; or peripherals, such as fax and network modems. The Ether Write supports six devices, and the EtherPrint Plus supports four. The EtherPrint Plus cannot be used with routing devices, but that shouldn't be much of a problem for most sites.

None of these boxes support protocol translation—they are AppleTalk-only products. If you need TCP/IP or some other non-AppleTalk protocol (such as Novell), you have to go with a more-expensive solution. All three have configurations to support thick, thin, and twisted-pair Ethernet, and all come with a one-year warranty.

All three products support both Phase 1 and Phase 2 AppleTalk. You can use DIP switches on the EtherPrint and EtherPrint Plus to select Phase 1 or Phase 2 operation. On the Ether Write, a switch allows the network manager to choose Phase 1, Phase 2, or Autoselect. Or the manager can use the Ether Write management software to override the DIP switch and lock in Phase 1 or Phase 2.

Both manufacturers provide management software. The EtherPrint and EtherPrint Plus management software is very simple: its only purpose is to let the network manager choose a Phase 2 AppleTalk zone for the box. The Ether Write software is a better management tool. It allows the manager to choose AppleTalk zones, allows password protection of the Ether Write, and gives performance statistics on the Ethernet and LocalTalk networks and on the Ether Write itself. The Ether Write software is stored in Flash ROM, which allows the network manager to update the product easily.

Only the Ether Write includes security software. Each Ether Write box has a password for controlling who can configure the Ether Write itself. A second level of security allows the administrator

to password protect each service (each printer or file system) connected to the Ether Write. To support this, each Mac on the Ethernet network must have the ENS cdev/INIT provided by Compatible Systems. Macintoshes that don't have ENS, or the password for a particular service, won't even see the services. Although this is cumbersome, it does work.

In my tests all three products had identical—and excellent—performance. Printing from a Mac on the Ethernet network to a LocalTalk printer was just as fast as from a LocalTalk Mac to a LocalTalk printer. Similarly, Macintosh file services weren't slowed down by connection to Ethernet. It's obvious that the LocalTalk network, much slower than Ethernet, is the bottleneck.

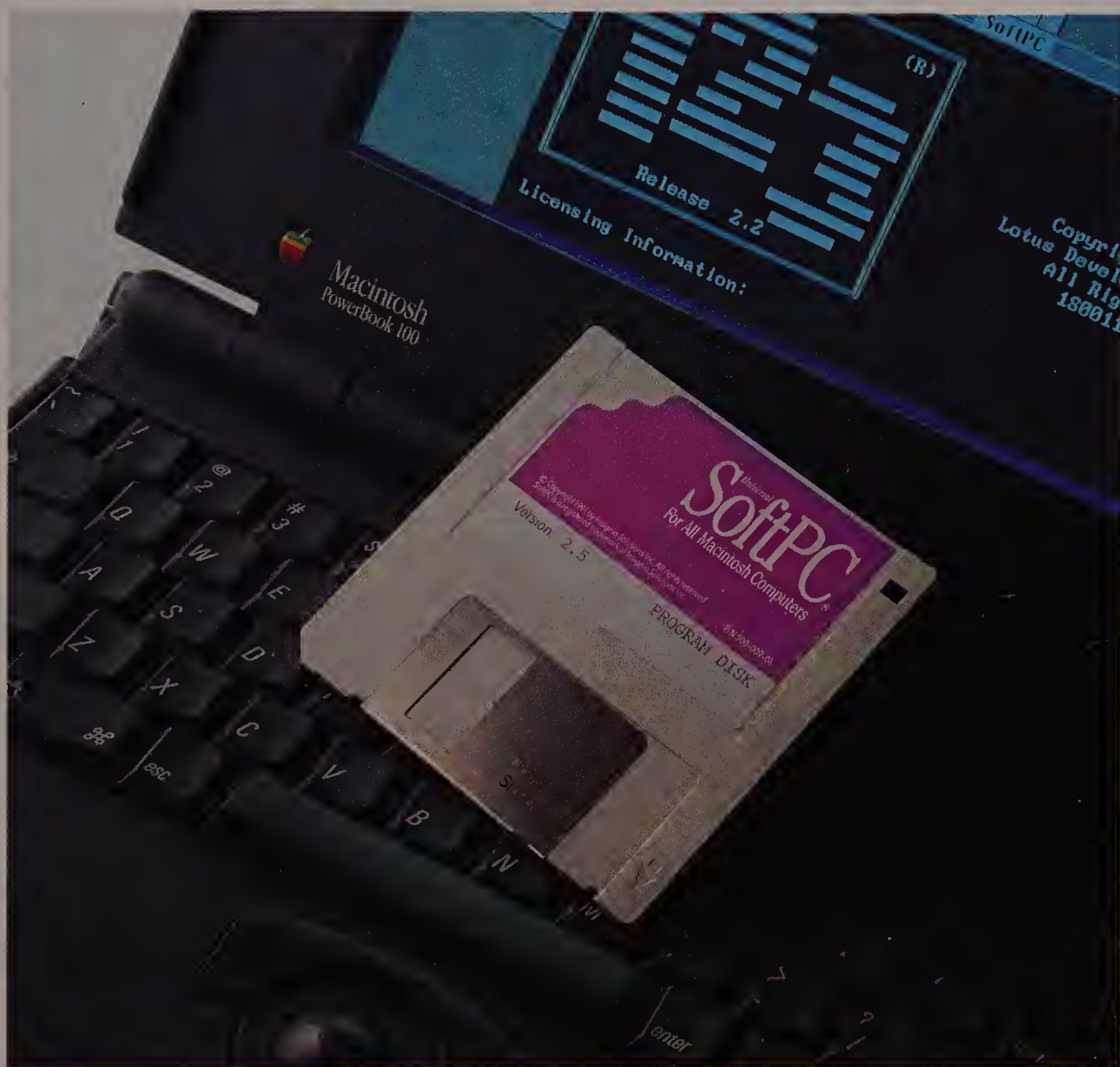
These "mini-router" devices have lots of applications. As Macintoshes move to Ethernet networks, one solution to the printing problem is to attach printers to minicomputers. Unfortunately, most minicomputers only support asynchronous connections, which slow down printing considerably. A case in point: a printer connected to a minicomputer server took about an hour to print an 8MB color PostScript file; a printer connected to one of the mini-routers took only 12 minutes to print the same file. For about \$100 a printer, both the Ether Write and the EtherPrint Plus can speed printing times substantially. And this is a lot cheaper than dedicating a Macintosh as an Ethernet/LocalTalk router, or spending thousands of dollars on a multiprotocol router.

PowerBooks can also use these mini-routers. For occasional uploading, downloading, and printing, the EtherPrint Plus and Ether Write are excellent. Cheaper than multiple SCSI-to-Ethernet adapters, both products allow PowerBook users to plug in, and operate with little or no fuss.

For multiple devices, I recommend the Ether Write over the EtherPrint Plus. The Ether Write is an elegant and cost-effective solution to a common problem, with excellent network-management capabilities. For about the same price, you get six devices, instead of the EtherPrint Plus's four, and you get better management, configuration, control, and security software. The Ether Write also has some nice extras: ten diagnostic LEDs to show Ethernet and LocalTalk traffic, and the ability to connect LocalTalk routers.

For a single printer, the EtherPrint is the least expensive. However, with a retail price of \$500, it may be difficult to justify buying the EtherPrint for a single printer; you should consider buying one of the multiport boxes instead. The cost difference is small for substantially greater expansion capability.—JOEL SNYDER

Why Your Next IBM Computer Should Be A Macintosh.



SoftPC makes your Mac an IBM compatible. With SoftPC, the new Macintosh computers are more than just powerful and portable. They are also the most compatible computers available. Now

they can run a whole world of MS-DOS software. Because SoftPC® from Insignia Solutions lets you run any MS-DOS program on a Macintosh. Even over a Novell PC network.

And SoftPC works on any Mac, from the Plus to the new Powerbooks and Quadras.

It's simple. Just load SoftPC and an IBM window appears on the screen. There's no hardware installation required. It's like having two computers in one.

If you don't believe it can be that simple, call us at (800)

Insignia Solutions
Bridging Worlds Of Software™

848-7677. We'll answer all of your questions, and show you how your next IBM computer could be Macintosh.

INSIGNIA SOLUTIONS INC., 526 CLYDE AVENUE, MOUNTAIN VIEW, CA 94043 FAX: (415) 964-5434 CALL: (415) 694-7600

SoftPC is completely compatible with Apple's System 7 software. SoftPC is a registered trademark of Insignia Solutions Inc. All other product names are trademarks or registered trademarks of their respective holders.

Circle 72 on reader service card

Digital Integrated-Circuit Trainer

MacBreadboard 1.1

PROS: Easy-to-use interface; good use of color; built-in chip library; minimal hardware requirements.

CONS: Fixed breadboard size; can't expand chip library; limited set of sample labs. **COMPANY:** Yoeric Software (919/644-1620). **REQUIRES:** Mac 512KE. **LIST PRICE:** \$59.95.



FOR YEARS ELECTRICAL ENGINEERING students have learned to design digital circuits containing integrated circuit chips using a homely little device called an IC breadboard trainer. The typical trainer consists of a white plastic block containing hundreds of socketed holes; a power supply; and a few ancillary switches, indicator lamps, and buzzers mounted around the periphery of the block. Students plug chips into the holes, and then plug wires into other holes to connect the pins of the chips to other chips on the breadboard or to the peripheral switches and whatnot. Then the student throws the on switch and is rewarded with either expected results or a burned-out chip.

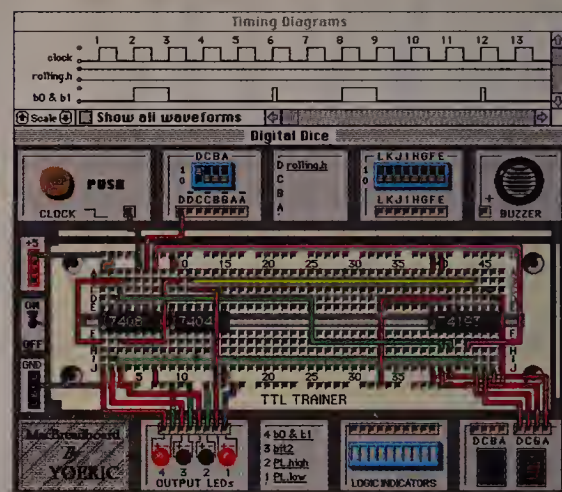
MacBreadboard simulates every aspect of these trainers. It displays, with uncanny fidelity, a full-color, three-dimensional rep-

lica, complete with power supply, assorted switches, LEDs, seven-segment readouts, a buzzer, and a variable-speed clock. You use the mouse to install chips from a library of 78 standard parts, dragging to make connections with wires. On a color Mac, wires of different lengths appear in different colors, as they do on real breadboards. You can turn on the juice at any time to see your circuit operate. The mouse pointer doubles as a logic probe, letting you test any circuit connection for voltage.

Circuits using the optional clock, which simply generates consecutive digital pulses at a rate you select, can display a timing diagram plotting state changes for all of the switches and indicators. Such diagrams are an indispensable tool for understanding circuit operation, and they have to be drawn by hand when using real breadboards. To help with debugging, MacBreadboard's Step mode lets you advance the clock one pulse at a time as you watch the circuit operate.

The board is large enough to accommodate five or six chips (depending on the number of pins), so you can build complex circuits. However, I was frustrated that I couldn't expand the working area when I wanted to add "just one more chip."

MacBreadboard's manual lacks an index but is otherwise complete, including an appendix with detailed schematics for each of the available chips. Very good online help



Virtual Breadboard In addition to actually running any circuit layout on the board, MacBreadboard generates timing diagrams for later analysis.

covers the same material as the manual, including schematics of the chip library. Unfortunately, you can't augment the library with more chip types. You're stuck with the ones Yoeric supplies: a selection of gate, inverter, shift register, arithmetic, and counter ICs commonly used for introductory courses, but no advanced devices such as memory or microprocessors.

In spite of some limitations, MacBreadboard is a useful educational device that accurately replicates and even surpasses the behavior of the physical tool it simulates. Except, of course, for the toasted chips. —MEL BECKMAN

Apple Menu Enhancer

Power Menus 1.0

PROS: Extremely simple; easy to use; fast; adds unlimited number of submenus to Apple menu; manual updating for PowerBook users. **CONS:** Cannot reorder Apple menu. **COMPANY:** Kiwi Software (805/685-4031). **REQUIRES:** Mac Plus; System 7. **LIST PRICE:** \$39.95.



IHATE CLUTTER. I'D LOVE TO HIDE all those things that cover my desk—the stapler, the tape, the paper clips, the extra pens and notepads—and I would if I didn't need to use them so often. Of course, I feel the same way about my Mac's desktop.

Power Menus is a simple little utility that adds flexibility to the Apple menu. It does basically just two things, but it does them well.

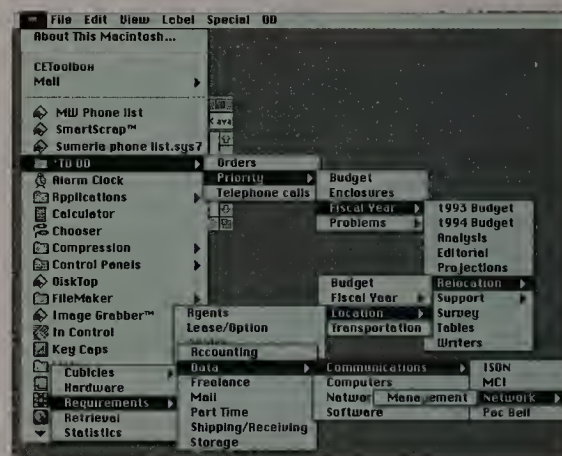
Most System 7 users have probably used aliases in their Apple menu to quickly access their most frequently used files or applications. Unfortunately, the menu can get unwieldy awfully fast. Power Menus adds submenus to the Apple menu. Other Apple menu utilities do the same thing, but the advantage of Power Menus is its DeepLevel accessing technology, which allows you to

display an unlimited number of submenus. Other programs are limited to five levels of submenus. In general, five submenus are probably plenty, but if you dislike clutter as much as I do, the unlimited access offered by Power Menus is wonderful. By placing an alias of your hard drive in the Apple menu, you can access every one of your files without opening a single window. And you can access them quickly. On my slow Mac II, Power Menus' submenus appear much faster than the actual windows do.

The other significant feature of Power Menus is its ability to change the font and size of the type in the Apple menu. If you're willing to read 9-point type, you can list dozens of files or applications. Of course, if you'd rather have 18-point type, that's an option as well. A condensed-font option enables you to squeeze more characters into the available space.

I'm not a PowerBook user (alas), but there is an option for those lucky souls that turns off automatic updating of the Apple menu. This lets sleeping hard drives remain in their unconscious state, saving time and battery power.

Power Menus does not allow you to reorder the Apple menu, although Kiwi does explain in the manual how you can insert extra characters in order to change the positioning of applications or documents. Microseeds' HAM, a competing Apple menu util-



Menus and More Menus An unlimited number of submenus is a lot more than any sane person would want to see. This screen shot has submenus hidden behind submenus for a total of 11. Mousing my way through 11 menus took far less time than opening the equivalent windows would have.

ity, can't reveal more than five submenus but does allow you to reorder the items on the menu. Power Menus lacks that feature, but that isn't enough to dissuade me from Power Menus. Still, if you don't have files buried six, seven, or eight folders deep, you might want to think seriously about what it is that you're looking for in an Apple menu utility.

Power Menus excels in accessing submenus and has a couple of other nice features. Does that make it worth \$39.95? If you, too, hate having a cluttered desktop, the answer is yes. —WENDY SHARP

The Preferred Choice...

We Now Offer 1 GByte Tahiti-II
High Performance Optical Drives



MicroNet's Rewritable Optical Systems Offer More Speed, Size, and Performance Options For Removable Data Storage.

Today's complex projects require forward-thinking storage solutions. That's why MicroNet has added a new 3.5" rewritable optical system to our Macintosh, PC, and workstation product lines. It's fast, reliable, and cost-effective. Store 128 MB on a shirt-pocket-size disk at a lower media cost than any other system. Access data in just 38 ms. And secure valuable files now, and far into the future with optical cartridges impervious to contamination and head crashes.

MicroNet also offers 5.25" optical storage options. Our 586 MB system is perfect for transporting or archiving large CAD, pre-press, or graphic files from work site to work site. And like our 3.5" system, it's ISO compatible, so media can be recognized in any ISO standard drive.

MicroNet's rewritable optical systems for the PC operating under NetWare, ship with our specialized driver for optimum performance. And systems on a PC network, when combined with Cheyenne's ARCserve or ARCserve/Solo, make archiving and retrieving Macintosh, OS/2, and DOS files fast and easy.

MicroNet's 3.5" and 5.25" drives are available in internal and external configurations for most computer systems. They ship ready to install with software, connectors, cables, and brackets as needed.

Find out why MicroNet's systems are the preferred choice in rewritable optical storage. Call the MicroNet Sales Department today for the name of a Reseller near you. 1-714-837-6033.



Quality You Can Count On.

MicroNet Technology, Inc.

20 MASON • IRVINE, CA 92718 • TEL: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: MICRONET.SLS • Compuserve: 76004,1611



All trademarks are the property of their respective owners.

Circle 139 on reader service card.

Astronomy Software

Expert Astronomer

PROS: Great educational tool for beginners while useful to experts; killer value. **CONS:** Not as useful with black-and-white monitor; cluttered interface. **COMPANY:** Softsync (305/444-0080). **REQUIRES:** Mac Plus; 2MB of RAM; System 6.0.4; hard drive. **LIST PRICE:** \$49.95.



I'VE ALWAYS THOUGHT THE BEST risk-free way to escape the stresses of living in an industrialized society is to go out on a cold, clear night with a telescope and watch the sky.

The Mac can't replace the telescope as a tool for watching the sky, but Expert Astronomer makes it a lot easier to become a hobbyist stargazer. The product, most effective in color, draws maps of the sky and has a significant database of information about celestial objects such as planets, stars, comets, and other galaxies. The program succeeds well both as an educational aid for a rank beginner and as a useful reference tool for more-expert would-be Keplers who own a telescope.

You can draw (and print) a sky map of what you'd see in any angle and direction

from any location on Earth. You can click on any one of about 9000 celestial objects, and the program displays information on it.

You can pick a location (there are several hundred cities in the database, or you can specify any latitude and longitude on the planet) and get a map of the sky, with or without identifying labels. Because Expert Astronomer allows you to filter out objects according to magnitude (basically, visibility), you can tailor the map to reflect the environment of a particular place. If your visibility is blighted by either light from human settlements or damp weather, you can print a map of the objects that you are most likely to be able to see under those conditions. You can print "snapshots" of the sky (either white on black or black on white) facing specific directions at specific times.

You can plan a sky-watching session, knowing what to look for in advance. You can also watch a time-lapse series on your screen (or print a snapshot with lines) showing the paths objects "travel" in the sky, so as the evening evolves you can judge where stars and planets have moved to. Additionally, the documentation answers some basic science questions in a nine-page introduction to astronomy, a glossary of common terms, and descriptions of the constellations.

The more experienced astrophile will be able to use all the mapping features of Expert Astronomer and should find the large

database of information about celestial objects handy. What's more, ambitious users will enjoy the product's ability to leave the planet and make sky maps from any angle from virtually any spot in the Solar System. With that capability, you can track space missions and make good use of any pictures they send back, spotting and identifying all significant objects.

The documentation is invaluable. The program's interface would be hard to learn if it weren't for the clear, logically laid out Tutorial chapter. The introductory material makes the book something for beginners to keep. The index is thorough and usable.

The program is not designed with different levels of users in mind, so the features for advanced astrophiles clutter the way for beginners. And the program gives short shrift to users with black-and-white displays; they won't have as easy a time decoding the maps as they would with a color monitor.

Considering the amount of three-dimensional coordinate information required to redraw a sky map, it's not surprising that redraw time is slow on an LC. Users of low-end Macs will benefit by turning on the manual-redraw feature.

Expert Astronomer is a valuable and fun science tool, both educational for the beginner and stimulating for the expert. And it is a great value at \$49.95.

—JEFFREY GORDON ANGUS

Math Simulation Software

Simulink 1.2

PROS: Iconic programming of simulations in math, physics, and electronics; much faster than other icon-based systems; a superset of MATLAB. **CONS:** Minor bugs; still command-line oriented. **COMPANY:** The MathWorks (508/653-1415). **REQUIRES:** Mac Plus; 2MB of RAM; math coprocessor. **LIST PRICE:** \$3995.



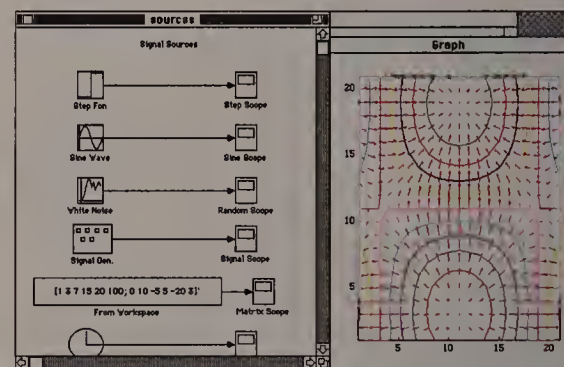
ONE OF THE FIRST USES FOR THE computer, way back in the 1940s, was matrix computation, since a matrix is an array of numbers upon which you perform arithmetic. And the matrix computations, way back then, were used to simulate the behavior of electronic networks, which is just one of the things that Simulink does today.

Simulink was developed by The MathWorks, best known for its program MATLAB—MATLAB runs on computers from Crays down to humble PCs. Classic MATLAB is an austere command-line-driven program, more like a specialized version of C than a Mac program (the current version of MATLAB has adapted successfully to Mac style). Simulink incorporates the company's experience in matrix software

and its applications—mainly digital signal processing, optimization, and control systems—but offers an easy-to-learn icon-based interface for designing simulations.

The term *simulation* in Simulink refers not to the kind of mechanical modeling you do in Interactive Physics II (also reviewed in this issue), where you watch objects moving around, but to situations that can be described by ordinary differential equations and for which the expected output is a graph. You can perform mechanical simulations as well, but without the moving pictures—and Simulink includes examples for open- and closed-loop linear and nonlinear modeling, an autopilot control system, and a variety of digital filters. The transfer functions that define the modeled system are all expressed as icons. Dialog boxes define the parameters for each icon, and mouse-clicks connect the icons in diagrams. A large assortment of icon operators similarly makes it easy to define sophisticated simulations in pictures. Simulink translates your design into matrices and scripts of function commands, called S-functions, which in turn can be saved as MATLAB M-files or as MEX-files for use in C or FORTRAN programs.

Other scientific software lets you program these functions in icons—National Instruments' LabView is the most popular example. The difference is that Simulink has a complete tool set for digital simulation,



Think Link Simulink's input functions are represented by icons, and the results are viewed in scope windows. The works of the simulation are block diagrams of operators, which Simulink internally translates into matrices in a special format.

and it's fast. If you hear the word *bode-plot* at work, Simulink is designed to make your life wonderful. The Mac interface is acceptable and in fact better than average by math software standards, but little glitches remain (the program doesn't quit when you choose Quit from the File menu; you must enter a Quit command at the >> prompt).

In practice you'll probably write models directly in MATLAB syntax, and for efficiency the program has a persistent bias toward programming-language, rather than icon-programming, models for simulation. But whereas *simulation* too often means an educational or toy program, Simulink is the industrial-strength real thing.—CHARLES SEITER



Now, MS-DOS Files Can Look Just Like Mac Files.



AccessPC is System 7 savvy as well as completely compatible with Apple's System 6.

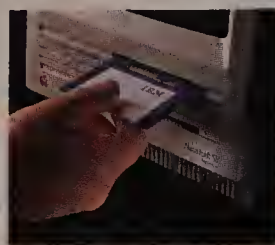
and give the PC folks back their diskette.

AccessPC is so easy to use, it gives new meaning to the word *utility*.

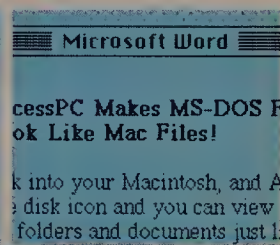
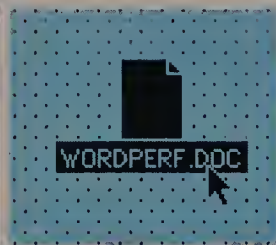
With AccessPC®, you just pop any DOS floppy in your drive, and in a couple of clicks, what you see on your desktop are Mac files.

And they not only look just like Mac files, they act just like Mac files in Mac applications.

You can edit, copy, save, print, play with the numbers, print again,



Put MS-DOS disks in your SuperDrive, double-click on the DOS file, and open it in your Macintosh application.



Plus, it includes powerful Multi-Driver™ and Media Formatter™ utilities, *free*. You get instant compatibility even with DOS removable cartridges and optical drives. And you can get access up to ten times faster than with other utilities.

Pick it up today. You'll be amazed at how such an inexpensive little utility can make you look so good.

Insignia Solutions®
Bridging Worlds Of Software™

For information on all Insignia's products and services, call our toll free Fax Response Service at 800-8-SOFTPC.

Insignia Solutions Inc., 800-848-7677. 526 Clyde Avenue, Mountain View, CA 94043. FAX (415) 964-5434. Call (415) 694-7600.

Insignia Solutions Ltd., Bellfield House, Bellfield Road, High Wycombe, Buckinghamshire, HP13 5HP, UK. FAX +44 494-459720. Call +44 494-459426.

AccessPC and SoftPC are registered trademarks and Multi-Driver and Media Formatter are trademarks of Insignia Solutions Inc. All other product names are trademarks or registered trademarks of their respective owners.

Circle 235 on reader service card

Puzzle Collection

The Castle of Dr. Brain

PROS: Great color graphics and sound. **CONS:**

Requires color monitor and high-density floppy drive; some puzzles more annoying than difficult.

COMPANY: Sierra Online (209/683-4468).**REQUIRES:** Mac LC; 2MB of RAM (4MB for System 7); high-density floppy-disk drive; 8-bit color monitor; System 6.0.7. **LIST PRICE:** \$49.95.

I'VE FINALLY FINISHED PLAYING THE Castle of Dr. Brain, and boy, does my head hurt. If my brain had lips, it would be saying, "Ouch!" just about now. Every type of brain-twisting, mind-boggling, head-spinning puzzle you can think of is in this collection.

The premise is that Dr. Brain is the local, slightly askew Einstein who has just placed an ad in the local rag for a lab assistant. You're asked to apply for the job in person at the castle door, which is also where you encounter your first puzzle: getting in the front door. You must use logic and raw brain power to navigate a series of rooms, mazes, and hallways to reach Dr. Brain for your interview. When you finally reach him, you're rewarded with the job and

a brief tour of his computer room, and the game concludes.

The puzzles in The Castle of Dr. Brain range from simple and mundane (hangman) to creatively laborious. One challenging puzzle presents three robot heads with which you converse to determine which is telling the truth, which is lying, and which one alternately tells the truth and lies. You must then program each robot to accomplish a task based on its degree of honesty. Other puzzles focus on astronomy, cryptograms, jigsaw puzzles, and word searches. The three levels of play vary in difficulty but not in the number or type of puzzles.

Clicking on objects propels you through the castle. To get information on an item or puzzle, you switch to an eye cursor and click, then switch to a hand cursor to make things happen. This becomes annoying after a while, since the cursor-selection menu is sometimes difficult to click on.

Like most brainteaser games, Dr. Brain is sparsely documented. It does, however, include the *Fantastic Book of Logic Puzzles* (Sterling Publishing, 1986), which is helpful, since it contains logic puzzles similar to those in Dr. Brain, with answers. Within the castle you can also use hint coins (earned by solving previous puzzles) to buy clues to the current puzzle. Sometimes these clues provide all the answers; sometimes they just explain the underlying logic. Sierra Online also



Dingdong You can click on the bell till your fingers are sore, but your brain must work harder to pass the front door.

has a 900 number you can call if you're really stuck, but the clues aren't worth the expense. Plus, these clues are recorded, so you must wade through a seemingly endless voice-mail queue to get to your specific problem.

The graphics and sounds in Dr. Brain are top-drawer. In fact, if it weren't for the splashy pictures and entertaining sounds I encountered in every room, I don't think I would have had the patience to reach Dr. Brain. For me, the collection was marginally entertaining (the word searches, hangman, and cryptograms tend to be too easy), but I think that a middle-school to high-school audience would appreciate it. Still, I have to admit, Dr. Brain contained enough tough and unusual puzzles to give my ego a challenge and a boost.—MATTHEW R. CLARK

Educational Game

Headline Harry and the Great Paper Race

PROS: Entertaining; good variety of stories; fun trivia questions. **CONS:** Limited educational value.**COMPANY:** Davidson & Associates (310/793-0600). **REQUIRES:** Mac LC; 3MB of RAM; color monitor; hard drive. **LIST PRICE:** \$59.95.

WOULD YOU LIKE TO BE A JOURNALIST with an unlimited expense account and the ability to travel through time? Headline Harry and the Great Paper Race is your chance. It's an educational history and geography game where you play a reporter for the *U.S. Daily Star*, tracking down a true story from one of the past four decades by traveling all over the United States.

Of course it's not that simple. As a reporter, you're competing with those evil villains from the *Diabolical Daily*, who want nothing more than to mislead the public with mixed-up stories and confusion. You've got to beat them to the newsstand by uncovering all the facts in your story before time runs out. Humorous obstacles (described in dialog boxes) slow you down, unless you

correctly answer the trivia questions. Occasionally, *Diabolical Daily* reporters lose their keys, notebooks, or other objects, and you gain time by grabbing the items.

Your high-tech research tool (and the game's main interface) is a Scoop 2000 portable photo-journal. On one side, it has a series of buttons; on the other, a window displays the action. The main buttons represent such things as a radio, a tape player, reference books, a video recorder, newsreels, and a videophone with direct dial to some helpful people. These provide clues to your story, and to the era in which the story is set. There's also a series of buttons that provide game-oriented assistance. They show such things as an itinerary of ten places where you might find information for a story, a timetable showing the time each action takes, and other useful facts.

Finally, a series of buttons access your notebook, where you record the details of a story—the place, time, date, people, actual event, and key words. When you enter the correct facts, green lights go on and a bell sounds. When you have all the facts, you send the story to Headline Harry, your editor. He congratulates you and shows you your well-written story, complete with your title and byline.

Traveling between places is easy and educational. One click on the map icon of the photo-journal changes your view to a

map of the U.S. Click on any state and you see that state with its main cities. As you return to the maps over and over again, you get a strong sense of where places are in relationship to other places. Still, you don't learn much about any of them.

Historically speaking, the game is less educational. Although complete stories are better than isolated facts, many of the stories aren't particularly significant. Some, such as Samantha Smith writing to the Kremlin, or even Rosa Parks refusing to stand on a bus, aren't necessarily understandable without some knowledge of the broader context—the cold war or the civil rights movement—an understanding that a ten-year-old is unlikely to have. The Quick-Time newsreels are good examples. If you don't already know the U.S. history of the past 40 years, the clips don't mean anything. Unfortunately, unlike the Carmen Sandiego games, Headline Harry doesn't teach students how to find the answers to their questions by using a reference source.

Headline Harry isn't an educational masterpiece, but it is fun. The trivia questions are bizarre but entertaining, and the stories are all interesting, if not deeply meaningful. The time limit and the grab for lost objects add a touch of video-game challenge, and aspiring reporters get to see their byline on the front page of a newspaper.

—WENDY SHARP



Gogh Crazy.

Presenting New CA-Cricket Draw III.

Friends, artists, Mac users...lend me your ears.

The world's hottest, most affordable drawing software has arrived: New CA-Cricket® Draw III.™ And we've packed it with today's most powerful features. Eleven Bezier-based, object-oriented drawing tools. Floating color windows

that allow you to select from RGB, HLS, CMYB & gray-scale color models. A dazzling new fountain fill tool. Masking and hole-cutting capabilities. A ruler-based text processor. Plus the ability to import PICT, EPSF, Scrapbook and MacPaint files.

And don't forget about our other powerful and easy-to-use Mac solutions: CA-Cricket® Presents,™ CA-Cricket® Graph,™ and ACCPAC® Simply Accounting.™

Dial 1-800 CALL CAI today for more product information or for the nearest dealer.

But you'd better hurry.

Because they're gogging like crazy.

© Computer Associates International, Inc., One Computer Associates Plaza, Islandia, NY 11788-7000.

COMPUTER ASSOCIATES
Software superior by design.

"Vincent Van Cricket". All artwork done in CA Cricket Draw III by Jim Jackson, winner of the inaugural CA-ImageNation Contest. Dial 1-800 CALL CAI for contest rules and more information.

Circle 10 on reader service card

Personalized Handwriting Font

PersonalFont

PROS: Font comes in TrueType and PostScript Type 3 formats; letters are connected when PostScript is used. **CONS:** Some letters appear cramped; small or slanted handwriting can look messy. **COMPANY:** Signature Software (408/458-0241). **REQUIRES:** Mac Plus; System 6.0.5. Recommended: PostScript printer. **LIST PRICE:** \$179.95.

MW ★★★★★

FOR YEARS MY FRIENDS COM-
plained about receiving typewritten letters. They claimed the letters were impersonal. And while I could justify sending the typed letters, I silently wished for a computer font that looked like my handwriting.

When I heard about PersonalFont, a service from Signature Software that creates printer fonts from samples of a person's handwriting, I was thrilled. And PersonalFont does most of what its maker claims.

The floppy disk you receive after submitting your order contains TrueType and PostScript Type 3 fonts of your handwriting (including your signature), which are accessible from the Font menu, with connected cursive letters. The only benefit Sig-

nature Software promised that I did not get was neater handwriting.

The results were good. I can definitely recognize the font as my handwriting. However, it looks rather like I've been writing in a car. My handwriting is very slanted, and the letters are small. Handwriting with larger, straighter letters yields better results. Non-cursive handwriting, especially when composed of capital letters, works even better.

To acquire your own font, you write 26 words and sundry characters on an order form, which is then scanned into Signature Software's system. A human operator processes each order using specialized software developed over the last three years by Signature Software's founders. Operators work through each character, picking the letters and making the connections that best fit your handwriting.

Part of PersonalFont's appeal is that different characters are used for a letter depending on where the letter occurs in the word. The program preserves some of the flourishes in your handwriting in letters that are at the beginning and the end of words. The look of letters within words depends on what letters are on each side.

*A fanfare for the common oaf.
A fanfare for the common oaf.*

Type Your Handwriting PersonalFont uses different characters for the same letter at the beginning, middle, and end of a word, as seen here with the letter *f*. The result can be cramped letters. The bottom line is handwritten, but overall can you see a difference?

PersonalFont is not available in PostScript Type 1 font format because making the connections between letters requires Type 3's flexibility. The TrueType font is needed for on-screen use and for use with non-PostScript printers, but because of TrueType 1.0's limitations, characters are not connected. According to Signature, TrueType 2.0 will eliminate these limitations; TrueType 2.0-compatible fonts should be available from Signature Software by the time you read this.

PersonalFont is not the ultimate in personalized handwriting fonts, but future improvements should further that cause. Signature Software's original \$100 price for the product was more enticing than the current price. Nevertheless, I recommend PersonalFont for each and every person who has heard (or read) the words "typing is impersonal." See if you can tell the difference.—TIM WARNER

Motion Simulation Software

Interactive Physics II 1.0

PROS: Easy to use; complex enough for real engineering simulation; includes electrodynamics; good QuickTime support. **CONS:** Large and not particularly fast. **COMPANY:** Knowledge Revolution (415/553-8153). **REQUIRES:** Mac Plus; 2MB of RAM; hard drive; System 6.0.5. **LIST PRICE:** \$399.

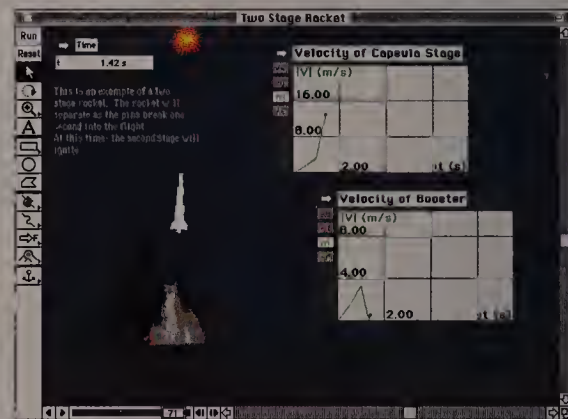
MW ★★★★★

WHEN MACWORLD REVIEWED Interactive Physics, we liked it a lot, and made some suggestions for additional features. That first version of Interactive Physics is sold under the name Fun Physics for \$99, while Interactive Physics II has everything we could have asked for, and more. In some cases *more* is a problem—you need more than 4MB of RAM to run IP II comfortably under System 7, and we found that complicated simulations run slowly even on a Quadra 700 with 8MB of RAM. But the range of problems you can solve with IP II has expanded, and IP II exports simulation files to QuickTime.

In Interactive Physics II, you drag different mechanical elements (masses of arbitrary shape, motors, springs, rods, actuators,

linkages) from a palette to a construction work-space window and then define forces (gravity, electromagnetic fields, spring constants) that act on these elements and initial velocities of parts that will be moving at the start of the simulation. Dialog boxes let you define the forces in the simulations with formulas of arbitrary complexity. Then hit the Run button in the toolbox or pick the Run command from the World menu, and the stuff starts moving. You can learn to do simple simulations, such as a swinging pendulum or a cylinder rolling down an inclined plane, in a few minutes. For more complex constructions, it's useful to take apart some of the examples in IP's large library of demo simulations, but in fact you can quickly learn to make complicated constructions on your own. The numerical data behind the visual simulation output can be shown on screen through meters or chart windows and can also be exported to table files for analysis in spreadsheets or math software.

IP II has whole classes of new features. There's a wider variety of simulation objects, sliders and buttons for input, and output graphs and meters. Values can now be represented by equations instead of simple numbers, and there's a new scripting language for creating formulas. Besides the QuickTime capability, you can save the time history of a simulation to disk and then you can play it back at a faster rate. Finally, the



It's a Blast This colorful simulation of a two-stage rocket shows off a nice feature of Interactive Physics II—you can attach pictures to the objects in the simulation to generate QuickTime movies.

scope of the program has been expanded to include huge experimental scales (10^{20} meters) and complete vector displays and imposes no constraints on number of objects.

Knowledge Revolution deserves high marks for IP II. Against the background of "motorized books" in HyperCard, picture stories with background music on CD ROM, and computer versions of standard question-and-answer drills, the company has developed a product that is a serious improvement over traditional classroom instruction. IP II can also be used for real mechanical-systems simulation for machine design or industrial design, as long as you don't have more than a dozen or so moving parts.—CHARLES SEITER

SuperStar

pass up this Star, and you could lose a bundle

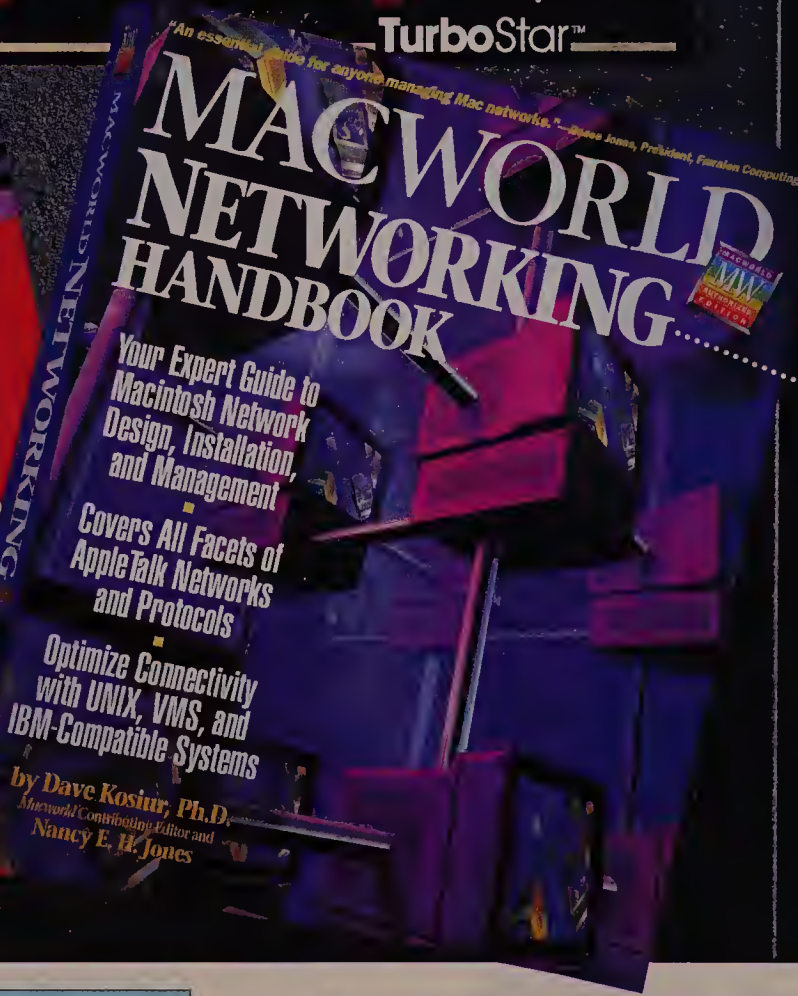
FOCUS
Quality, Service, Support & Value

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

FREE \$129 value

Techworks Net Utilities is a collection of five indispensable tools for Macintosh networks of all sizes. Net Utilities helps you keep track of your network devices, alerts you to network problems and lets you hold real time conferences with other users.

The Net Utilities applications can run on any Macintosh on an AppleTalk network with no additional client software and a minimum of network traffic.



\$499 Direct Sales brings Star prices down to Earth. When it's time to expand the capabilities of your Mac LocalTalk network, think TurboStar - the smarter LocalTalk Active Star Hub. 100% compatibility with Farallon PhoneNET™ and StarController™ products is guaranteed - we have over 500,000 Macintosh connectivity products in use everyday.

FREE \$19.95 value 540 pages of Macintosh networking from the ground up. Practical examples and illustrations lead you from the basics of networking and connectivity to advanced management techniques and interoperability. All in plain English, without relying on technical buzzwords to get their point across.

Call for the FREE Focus Buyers Guide your source for saving 40%-70% on Removable, Optical, and Hard Storage; LocalTalk, Ethernet, Memory, and dozens of hard to find Mac Accessories.



WELCOME TO A BETTER WAY TO PURCHASE MAC ENHANCEMENTS

Save hundreds by buying direct. We've eliminated the middleman, and passed the savings on to you, **Saving you 40% to 70% everyday.**

TURBOSTAR EXPANDS YOUR LOCALTALK NETWORK WITH THE PROVEN RELIABILITY OF A STAR HUB

The smart buyers choice is TurboStar at \$499. And now every TurboStar features **TechWorks Net Utilities** - an indispensable collection of five networking tools: ① MultiChat ② NetTimer ③ NodeWatch ④ LaserCheck ⑤ NameScan. You *also* receive the ultimate resource: **MACWORLDS Network Handbook**: your expert guide to Network Design, Installation and Management (540 pg).

Absolutely The Best Value

Focus TurboStar 16 Port Hub Including Network Bundle

\$499⁹⁹

includes 30-day money back satisfaction guarantee and full 3-year product warranty

compare price with

Farallon StarController 12 Port Hub PN307 and PN357

\$1295⁰⁰ suggested retail
\$899⁰⁰ warehouse price!

prices verified on September 1992

ONLY TURBOSTAR GIVES YOU 16 PORTS (ONLY 12 IN BRAND 'F'), LED STATUS LIGHTS, A FULL 3-YEAR WARRANTY, PLUS \$159 OF VALUE-ADDED EXTRAS FOR ONLY \$499 DIRECT

We money-back guarantee 100% network compatibility. And *no one* offers better Product Support and Value. Try TurboStar for 30 days. If for any reason, you're not 100% pleased, return it for a prompt courteous refund.

CALL NOW TO ORDER - and ask for your Free Buyers Guide

800.538.8866



FOCUS
enhancements

How to Order: Our Customer Advisors will help you Monday thru Friday 9 to 8, Sat & Sun 11 to 5 Eastern Time. We accept VISA, MasterCard, American Express, Discover, Fortune 500 PO's, Government and University PO's (approved), business and personal checks (with check approval), Cashiers checks, Money Orders, and COD. • Focus Enhancements, Inc. 800 West Cummings Park, Woburn, MA. 01801 • 617-938-8088, fax 938-7741

© 1992 Focus Enhancements, Inc. All rights reserved. Focus, "The Focus Smart Buyers Guide", TurboStar, are registered trademarks of Focus Enhancements, Inc. All prices and items subject to change and availability. All product names are trademarks of their respective holders.

Circle 90 on reader service card

Surge-Protected Automated Power Strip

PowerKey 2.0

PROS: Adds one-touch keyboard on/off control to any Mac and three peripherals; clever software; can turn on system and run QuickKeys macros at specified times. **CONS:** Doesn't work with Mac Plus. **COMPANY:** Sophisticated Circuits (206/485-7979). **REQUIRES:** Any Mac with ADB port. **LIST PRICE:** \$119.



IF YOU HAVE AN SE, CLASSIC, OR LC, you've probably eyed that big button at the top of the keyboard—the one with a left-pointing triangle on it—and wondered what the heck it was for. Eventually you probably discovered that on Mac II's and Quadras, this key is actually the power-on button—but on your Mac, it's just decoration.

Until now. The PowerKey looks like an attractive, Mac-colored, multiple-outlet power strip—or, more accurately, power box, since the four surge-protected outlets (the good kind, the ones that take three-prong plugs) are packed onto opposing edges of a 4-by-5-by-2-inch rectangle. You plug the Mac and keyboard into the PowerKey, and suddenly you can turn on your compact Mac or LC from the keyboard.

The PowerKey also eliminates that "You may now switch off your Macintosh safely" message that appears when you shut down your Classic or SE. When you choose Shut Down, the Mac blinks completely off, exactly like the II-class machines.

But the PowerKey's appeal isn't limited to those with do-nothing power-on keys. All four PowerKey outlets get turned on and off simultaneously. No matter what Mac model you own, you can turn on the Mac, printer, external drive, and desk lamp, all simply by touching the keyboard's power-on button—and, of course, they all go off together when you shut down the Mac.

For many people, having four nifty outlets blink on and off in surge-protected sync is joy enough. But in the "Now how much would you pay?" department, you also get the PowerKey software that's every bit as clever as the circuitry. This control panel somehow stays awake even when the Mac is off—don't ask me the technical details; it has something to do with the Mac's ever-ticking battery-powered clock—and can actually turn on the Mac, unattended, at any time you choose, on specific days of the week. Better still, the PowerKey software can fire off a QuickKeys macro of your choice (QuickKeys Lite, a stripped-down version, is included). You can set up the PowerKey to spring to life at midnight, log on to AppleLink, fetch the electronic mail, back up the

hard drive, and shut down the entire system. The PowerKey software can even send Apple events; a network manager, from a single Mac, can write an on/off/automatic backup schedule for, say, 25 PowerKey-equipped Macs in the office, using a scripting program like UserLand Frontier.

The PowerKey has taken on a new relevance with the advent of PowerBooks and remote-access computing. A companion product, PowerKey Remote (\$49), is a tiny plastic doodad that hooks up to your phone line and modem, so that you can trigger all the PowerKey's magic just by dialing in, from anywhere in the world. (In the event of a wrong number, your Mac shuts itself down after an amount of time you specify.)

Lest you get the impression that this device is flawless, let it be known that it doesn't work with the Mac Plus (which has an older, non-ADB keyboard jack). And the PowerKey control panel has incompatibilities with MacTel hard drives, Kensington trackballs with extra-long cords, and Baseline's Talking Moose. Then again, you only need the PowerKey software if you want to do all that middle-of-the-night automation jazz; the hardware does its keyboard power-on-button (and shutdown) stunts without any software at all. The PowerKey is an ingenious, hassle-free, well-designed add-on that seems to contain some sophisticated circuits indeed.—DAVID POGUE

Molecular-Biology Software

Sequencher 2.0

PROS: Fast; user-specifiable search-and-match characteristics; checks for adventitious vectors; voice interaction for sequence reading. **CONS:** Needs more map-construction features; hardware copy-protection scheme. **COMPANY:** Gene Codes Corporation (313/769-7249). **REQUIRES:** Mac SE; 2MB of RAM (4MB for System 7); System 6.0.5. **LIST PRICE:** \$2200.



SEQUENCHER IS THE BEST SOFTWARE currently available for manipulating DNA-sequence information on a computer. While it lacks some of the features found in molecular-biology software for other platforms, and is also missing some of the amenities found in Mac programs from the largest molecular-biology firms, Sequencher has the paramount virtue of raw speed. Rather than implement everything a DNA researcher could want, Gene Codes has provided everything a researcher actually needs and has done an impressive job.

There are different experiments for sequencing DNA, which means identifying the order of the nucleotide bases guanine, adenine, thymine, and cytosine (G, A, T, C)

along the DNA molecule. The problem is that the experiments typically give information about fragments, and the researcher must find out where different experimental fragments belong in the colossally long connected string of bases. A sequenced fragment, for example, may be 400 to 600 bases long, and the researcher must find its place in a DNA section a hundred thousand to millions of bases long. It's as if you had overlapping fragments of all the paragraphs in *War and Peace* and were faced with the task of constructing a correct, complete version of the book. Sequencher is therefore like a highly specialized word processor designed to operate on sentences composed of the letters G, A, T, and C.

The experimental data on fragments must be knitted together to identify contiguous alignments, nicknamed contigs, where fragment information overlaps. In Sequencher you define a project (a folder that contains your experimental-data files), and within the project you can decide to look for contigs yourself, by entering special sequences for the program to find, or ask the program to look for all possible contigs automatically. Since there is typically ambiguity in experimental data (a base might be known to be either A or G, for example), you can set the statistical certainty level of the contig-finding process and check the results yourself in the sequence editor.

This process is the program's overwhelming strong point. It's so fast that you can check sets of dozens to hundreds of fragments in seconds rather than minutes. At a similarly high speed, you can look for restriction sites (places where the DNA is cut by special enzymes). A special utility lets you check for vector contamination of your database files or files downloaded from genetic data banks (vectors are small fragments of DNA used in the sequencing experiment and aren't supposed to show up in the final, "real" sequence). As a last bit of searching prowess, Sequencher is also great for finding transposon-induced duplications.

Version 2.0 introduces some novelties: vocal read-back of sequences using celebrity voices (molecular-biology celebrities, anyway); an interface to Applied Biosystems' automated sequencers; and motif marking to highlight points of interest in long sequences. These are enhancements of the program's basic mission—if you want software with more emphasis on publication graphics, you might prefer Textco's Gene Construction Kit, or for a package covering other topics in molecular biology, consider IBI's MacVector. But if your lab is sequencing more than 1500 bases per week, just get a copy of Sequencher and use it as your main sequence-management program. For serious sequencing, it's your best bet on the Mac.—CHARLES SEITER

We Have Connections

The Competition

\$59⁹⁵

\$39.50 in Ten Packs
\$31.90 in Fifty Packs

Guaranteed 100% compatible with AppleTalk & PhoneNet—because every TurboNet ST is Manufactured under Patent License from Farallon Computing, Inc.

The Focus TurboNet ST™

\$14⁹⁹

\$11.99 in Ten Packs
\$ 9.99 in Fifty Packs

Expensive

Black!

This is a 'plug-in' terminator. Leave these off (or on) in the wrong places, and your network doesn't work.

The TurboNet ST uses a remarkable new Distributed Signal Dependent Damping technology that automatically absorbs reflected signal and keeps the work out of maintaining your network.

*Suggested Retail Price
all prices verified on 6/24/92

LED activity lights show you network signal activity—invaluable when determining which node is receiving or transmitting signals to the network. Only TurboNet ST has this feature—if you ever have to trace a dead node, you'll appreciate activity lights forevermore.

Save even more with 10 Packs & 50 Packs!

10 Pack **\$119⁹⁹**
Farallon's PhoneNet price - \$395.00*

50 Pack **\$499⁹⁹**
Farallon's PhoneNet price - \$1,595.00*

How do we sell products at these low prices? Manufacture it and sell it Direct to the customer.

You save \$40 or more on every TurboNet ST—because we took the middlemen out of the loop

TurboNet ST allows you to use ordinary phone wiring to connect your Macintoshes, printers and peripherals together. It's the smart buyers alternative to Apple and Farallon's expensive connectors.

Only TurboNet ST has all of these features:

- LED activity lights
- Self terminating
- PhoneNet & AppleTalk compatible
- Lifetime Warranty

Anyone who has experienced the task of troubleshooting an AppleTalk network and tried to determine which node was sending or receiving data on the network can tell you: You can't see where network activity stops without LED lights! And only TurboNet ST has activity lights.

The Best Value

Features	TurboNet ST	PhoneNet
LED Activity lights	✓	
Self-Terminating	✓	
Lifetime warranty	✓	✓
For all Macs	✓	✓
Cool Black Color	✓	
Under \$15	✓	
Surge protection	✓	✓
30-day Money Back Satisfaction Guarantee	✓	*

*Policy varies with individual retailers.

Our unique self-terminating feature means you won't ever have to troubleshoot termination problems with a network that uses TurboNet ST's. It's that simple. And termination is something we can all do without these days.

100% compatibility with all Macs & PhoneNet connectors is guaranteed by Focus. And if any TurboNet ST ever fails, we will replace it with our lifetime product warranty.

So stop wasting your time and money with overpriced PhoneNet connectors—order TurboNet ST today.

800-538-8866

Call toll free to order now
Inquiries welcomed from Resellers, VARs, and Systems Integrators

FOCUS
enhancements



Call for your FREE Catalog of Mac Enhancements

How to Order: Our Customer Advisors will help you Monday thru Friday 9am to 8pm Eastern Time. We accept VISA, MasterCard, American Express, Discover, Fortune 500 PO's, Government and University PO's (approved), business and personal checks (with check approval), Cashiers checks, Money Orders, and COD. • Focus Enhancements, Inc. 800 West Cummings Park, Woburn, MA. 01801 • 617-938-8088, fax 938-7741

© 1992 Focus Enhancements, Inc. All rights reserved. Focus, TurboNet ST, "The Focus Smart Buyers Guide", are registered trademarks of Focus Enhancements, Inc. PhoneNet is a registered trademark of Farallon Computing, Inc. Farallon suggested retail prices verified on 6/24/92. Macintosh, LaserWriter, AppleTalk, and LocalTalk are registered trademarks of Apple Computer, Inc. Manufactured under Patent License from Farallon Computing, Inc. All prices and items subject to change and availability.

Circle 89 on reader service card

Nutrition-Analysis Software

The Diet Balancer 1.0

PROS: Extensive foods database; easy to learn; clear charts. **CONS:** Poor manual; no color support; no online help. **COMPANY:** Nutridata Software Corporation (914/298-1308). **REQUIRES:** Mac Plus; System 6.0.4. **LIST PRICE:** \$69.95.



Nutri-Calc Plus 1.2

PROS: Extensive foods database; good manual; thorough nutrition analysis. **CONS:** Cumbersome design; no preplanned meals. **COMPANY:** Camde Corporation (602/926-2632). **REQUIRES:** Mac Plus; second disk drive or hard drive; System 6.0. **LIST PRICE:** \$225; site licenses available.



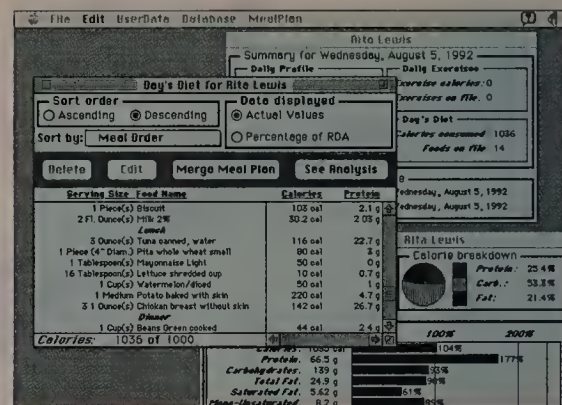
HEALTH-CONSCIOUS MACINTOSH users can now choose between two programs that manage nutrition information and analyze personal diets. Nutri-Calc Plus and The Diet Balancer both consist of user-extensible databases (or food lists) listing the nutritional values and standard serving sizes of a wide variety of foods, including fast foods, brand-name prepared foods, and

cooking ingredients. Nutri-Calc Plus measures 33 nutrients and has a database of 3500 foods. The Diet Balancer analyzes 26 nutrients from 1750 foods; additional food lists are optional.

Of the two, I like The Diet Balancer better for its easy-to-use personalized weight-planning tools. Nutri-Calc Plus has similar tools but gives less assistance with individual weight planning. In both cases, you use the food lists and search tools to construct meal lists, which consist of recipes broken down to their constituent parts. Portion screens let you alter the quantities of each food.

Both programs display nutritional values of meals on various types of charts—such as a pie chart showing the percentage of proteins, carbohydrates, and fats in your diet; or a bar chart showing the types of fats in selected meals. The Diet Balancer limits its analysis to a breakdown of meals into percentages of the recommended daily allowance (RDA) for its 26 tracked nutrients; Nutri-Calc Plus displays this type of breakdown as well as more extensive analyses of proteins and fats. Both programs display graphs of an individual's dietary history based on records of the user's weight changes over time.

Nutri-Calc Plus is powerful, enabling knowledgeable users to design meals down to the exact quantities of nutrients in each



The Diet Balancer These charts show the caloric and nutritional value of selected meals.

ingredient to meet any dietary requirement. This flexibility makes the program more difficult to master, since you have to know what nutrient quantities to alter and what effect each has on the body. Also, its lack of pre-built meal plans makes designing meals difficult. Unlike The Diet Balancer, Nutri-Calc Plus does not catalog foods by meal type (breakfast, lunch, or dinner) or let you search by meal type. The Diet Balancer lets you save meal plans and their analyses. Nutri-Calc saves only the nutrient totals and not the food lists—a major shortcoming.

In summary, The Diet Balancer is useful for home diet planning, whereas Nutri-Calc Plus is positioned for use as a professional nutritionist's diet-planning tool.

—RITA LEWIS

Networked Backup Software

SnapBack 1.0

PROS: Simple setup; any Mac can be a server; backup can be mounted like a server volume. **CONS:** Requires a dedicated hard drive; program cannot log on while another application on the server is in use. **COMPANY:** Golden Triangle Computers (619/279-2100). **REQUIRES:** Mac Plus; 2MB of RAM (3MB with System 7); dedicated server; hard drive; System 6.0.4. **LIST PRICE:** \$129; 6 additional users \$229; 12 additional users \$329.



MANY PEOPLE EXPECT networked backup programs to be bursting with features, but SnapBack's strength lies in its simplicity. Initial setup on the server using the administrator software takes only a few minutes, and SnapBack presents individual users with an easy-to-use, one-window interface.

You can designate files for backup by giving them a certain label in the Finder (under the Color menu for System 6; under the Label menu for System 7). This option is grayed out on systems with fewer than 16 bits of color. Alternatively, you can specify files according to modification date or a

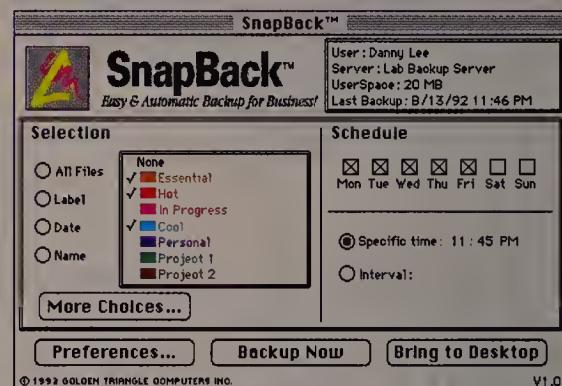
user-defined extension (such as .backup), or simply back up all files. SnapBack also lets you exclude folders, though not individual files, so you can limit a backup to the most important folders.

You can choose the time and days of the week when you want the data to be backed up, or opt for an interval—from every 1 minute up to every 17 hours.

SnapBack backs up data to a networked hard drive, a removable drive, or an erasable optical drive that has been formatted and partitioned with the SnapBack server software into volumes—one for each SnapBack user. To retrieve files from the server, you simply click on the Bring to Desktop button, which mounts the backup partition just like an AppleShare volume. You can also copy, delete, and move files within folders in the backup.

Since the network administrator fixes partition sizes on the server at setup, individual users are limited to the amount of data they can back up and store. One handy feature, Test Backup Size, calculates how much data you have selected for backup. To save space and time, SnapBack does not back up files that have not changed since the last backup, instead moving them to the most recent backup folder.

SnapBack is slow compared with Dantz Development's Retrospect Remote (although faster than System 7's file sharing),



Pick Your Protection SnapBack lets you choose files for backup with several options, including by the file's label (shown here).

so it's best to schedule backups for after work hours. Other, more minor shortcomings include not being able to print backup reports to a file and misleading progress bars that show the backup to be 100 percent complete but that linger before returning control of the Mac to you.

Because hard drives can fail—including backup drives—I recommend making periodic backups to tape using more-robust software. SnapBack is a great choice for regular day-to-day backups. According to Golden Triangle, a new version of SnapBack (which should be available by the time you read this) will include scripts that enable users to save backup parameters for several common backup tasks, as well as add more file-selection criteria.—TIM WARNER

Dynamite Comes in a Small Package...



Voice*

Caller ID*

14,400 bps FAX

\$399.95

5 Year Warranty

14,400 bps DATA

Never before has so much power & technology been packed into a SupraFAXModem! The SupraFAXModem V.32bis combines a potent mix of fax and data features — for explosive results! Maximum fax potential is achieved with Group 3 fax machine compatibility at up to 14,400 bps and Class 1 & 2 software compatibility. With raw data speeds from 300 to 14,400 bps, and up to 57,600 bps with V.42bis compression, it blasts data over telephone lines. Plus its revolutionary display

gives you 25 different status reports! For just a little more, you can add caller ID and voice capabilities later this year. All this for a dynamite price! In addition to the

\$399.95 stand-alone version (without cables and software), the Macintosh package combines the SupraFAXModem V.32bis, cables, and FAXstf™,

MicroPhone™ 1.6, and CompuServe Information Manager™ software for \$479.95.

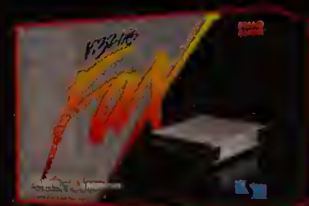
SUPRA **FAX** MODEM V.32bis



Supra Corporation

1-800-967-8772

9600 bps Version
\$299.95



NOW SHIPPING

* Low-cost, user-installable Voice & Caller ID upgrades available Q3 '92 • All trademarks belong to their respective companies.
7101 Supra Drive SW, Albany, OR 97321 USA • Fax: 503-967-2401 • 503-967-2410

Board Game

Go Master 5.0

PROS: Plays a respectable game of go; incorporates many helpful learning aids and sample games; modem play and other tutorial features. **CONS:** None. **COMPANY:** Toyogo (808/396-5526). **REQUIRES:** Mac 512K. **LIST PRICE:** \$69.

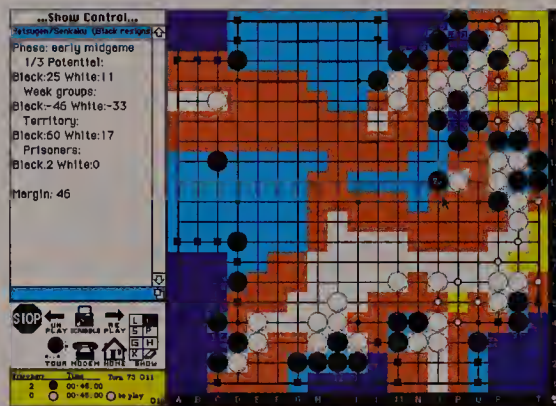


AROUND 2300 B.C., THE GAME OF GO emerged in China. It's quite simple on the surface, and you can learn the rules in a few minutes, but it's one of a handful of games not yet conquered by the computer.

In go, two players take turns placing stones, black for one player and white for the other, on a grid. The aim of the game is to surround and control areas on the board by forming continuous chains of stones. There are a few rules for capturing isolated stones and groups of stones, and scoring just consists of counting the grid points controlled by each side. The problem is that until you develop some strategic sense, looking down at the big blank board and trying to find a reason to place your stone on one of the possible 361 grid points instead of on another can be bewildering. An American computer scientist named

Bruce Wilcox decided that if he could evolve some general strategic principles, he might be able to write an "intelligent" computer go program (one that follows strategy rules rather than searching all possible moves exhaustively) and develop a faster way to learn go skills. He succeeded, and Go Master 5.0 is the best way to learn go and is a stronger player than earlier versions (the Mac version can play respectably against dedicated hardware go machines from Japan).

Version 5.0 is full of learning improvements. It supports modem play—you can now take go lessons from professionals or play cross-country. The game window now features a Tour button for easy review of



Coming to Go Go Master lets you display "controlled" areas of the board and gives you a running strategic commentary in a text window. Using these two facilities, you learn go at record speed. In this game, incidentally, white went on to win.

annotated games, and tours from beginning to advanced games are provided in Go Master "book" files. But in go as in life, the real issue is "What's your next move?" and version 5.0 has the answer. The setup screen, for example, lets you request a continuous stream of hints and explanations of tactics, and try out moves and then unplay them. But the more impressive visual go aids are called from the Show menu, available as a standard Mac menu or as a little icon window next to the game board. Besides hints, the Show choices include liberties (safety levels of stones), control zones on the board, current score, groups of stones and their connections, patterns or obvious responses, and capturable stones.

The effect of this barrage of prompts is remarkable: after 10 to 20 games, you may find that you have absorbed enough strategic principles that you can often apply them as well as or better than your Mac. Fortunately, go has a built-in handicapping system (the weaker player gets a defined number of "free" stones to put down at the beginning of the game) so that you can always make a go game a real challenge. Toyogo makes a less expensive Junior version, and offers a tool kit and extra tutorials for experienced players, but I recommend Go Master to anyone with the slightest interest in games or even in computer science.—CHARLES SEITER

Network-Support Utilities

TechWorks NetUtilities

PROS: Good value; well-rounded suite of tools. **CONS:** No automatic notification in conferencing module. **COMPANY:** Technology Works (512/794-8533). **REQUIRES:** Mac Plus; System 6.0.5; AppleTalk version 48-compatible network. **LIST PRICE:** \$129.



DECIDING TO SHELL OUT BIG bucks to set up a Macintosh network may be the most harrowing responsibility an office manager or business owner will ever face. Then once the network is up and running, it needs to be kept that way. Network-monitoring and -configuration utilities, now proliferating on the market, can help you maintain a network in good shape.

Unfortunately, these utilities tend to be expensive—from \$500 to \$900, street price. TechWorks NetUtilities provides some essential network-monitoring tools at a price to please even the most penny-pinching financial officer. But don't let the price fool you—NetUtilities is a solid collection of five separate applications, which operate from similar interfaces. Together they provide capabilities found in costlier packages, with-

out including features that often prove to be surplus rather than necessity. In testing, all the utilities functioned without a hitch. The well-written manual clearly explains the function of each utility and how to interpret the data they provide.

NameScan scans the network for devices and builds a simple but complete list of network-specific information such as the network number, zone, responder name, and socket number. You can sort the list by any field and export the information to a word processor, database, or spreadsheet.

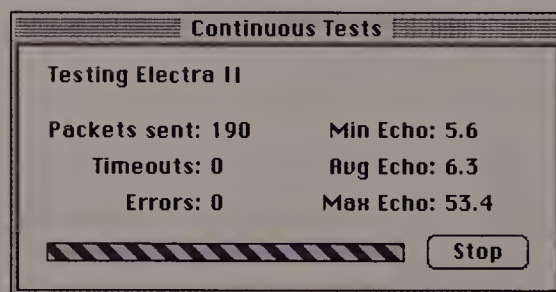
NetTimer measures the time data takes to travel from one machine to another and reports on network performance. Excellent charting and graphing capabilities enable you to track this performance over time as well as compare different devices. Node-Watch monitors devices you specify and lets

you know when they go offline or online, keeping you informed of trouble spots. When problems arise, NodeWatch notifies you by sound, dialog box, or by launching a program such as a paging application.

LaserCheck lets you retrieve information from, and configure, laser printers on the network. You can assign them names and see how many pages they've printed and how much memory they are using. LaserCheck also displays font information and downloads PostScript files to printers. Best of all, LaserCheck can name printers across network zones; similar applications cannot.

MultiChat is sort of a mini-messaging system that can be used for electronic conferencing. Anyone with MultiChat installed can begin a conversation and then invite others to join in. Its only drawback is that you can't alert people electronically; you have to notify potential participants in person. At that point, unless you need to document your conversation, you might as well finish the conversation in person. You can use MultiChat throughout an office without purchasing copies for each station.

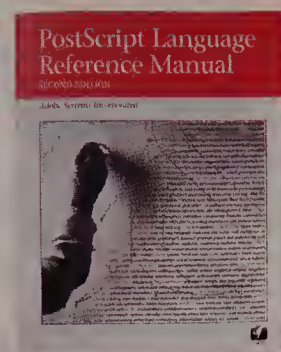
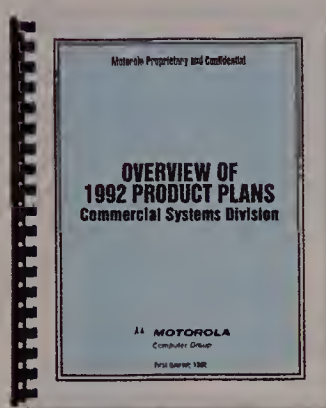
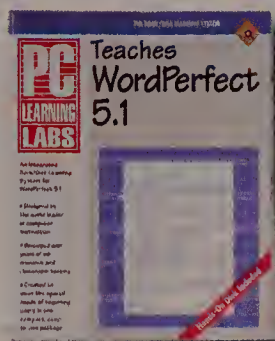
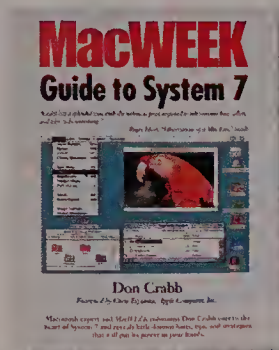
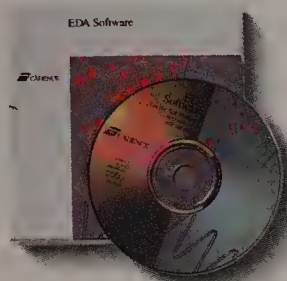
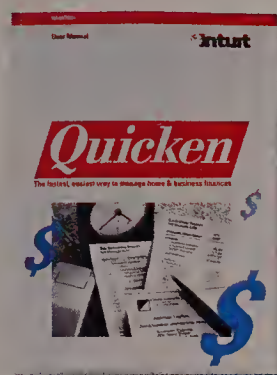
TechWorks NetUtilities makes a great foundation for the budding network guru. Even seasoned professionals may find that for \$129, they can do without some of the extras, such as network mapping, CPU inventory, and software updates, that go into more costly packages.—MATTHEW R. CLARK



The Computer Is Listening NetTimer provides a simple but effective way to perform continuous echo-packet testing, helpful in diagnosing a poor network connection.

► Frame

Our credentials in business publishing are well-documented.



A wide variety of businesses choose Frame: The complete solution for document publishing, on-line distribution and database publishing.



No doubt you can identify with the people who produced these documents. Their work is critical. Their companies' standards are high. And it's imperative they make their deadlines.

► Ask them how they pull it off and you'll get the same answer across the board. FrameMaker®. It simplifies their jobs by integrating the entire document publishing process: Word processing, page layout, graphics, tables editing and even hypertext.

► Join them and you too will begin breezing through tasks you used to consider chores. Say you need to reorder sections. Include cross-references. Build TOCs. FrameMaker makes these tasks automatic.

► How about updating an existing publication or creating multiple versions of a single master document? Only FrameMaker's unique conditional text feature makes this easy.

► And with Frame's leading edge viewing technology, FrameReader™, you can distribute FrameMaker documents electronically, so everyone in your organization receives up-to-date, accurate information on-line. Both FrameMaker and FrameReader are completely file compatible across all major desktops: Apple® Macintosh, Windows™, and UNIX workstations.

► Call **1-800-U4-FRAME Ext. 223** for a **free** guide to integrated document publishing. And examine our credentials for yourself.



 **Frame**®

Strategy Game

Warlords

PROS: Beautiful graphics and sound; colorful.

CONS: Army moves are tedious; computer opponents not strong enough. **COMPANY:** Strategic Studies Group (904/494-9373).

REQUIRES: Mac Plus; 2MB of RAM for color; System 6.0.2.

LIST PRICE: \$59.95.



WARLORDS IS A COLORFUL GAME of strategy and conquest set in a medieval fantasy world on the continent of Illuria. You start out as one of eight leaders, each the ruler of his or her own capital. You can choose to play the elves of Elvallie, the evil Lord Bane, or any of the other six contenders for supremacy. On the first move, a hero arises in your capital, a powerful warrior ready to battle your many foes. Your first object is to subdue the surrounding neutral cities and use them as bases to recruit regular troops (not heroes). Along the way your hero must search ruins and visit temples in hopes of finding magic weapons and obtaining the blessings of the gods. Your long-term goal is to conquer everything on the map, of course.

To win, you have to decide what kind of

troops to recruit, how large a garrison to keep at each city, when to launch an attack, and when to send off your hero or heroes (later in the game, you get more than one) to explore ruins instead of leading soldiers into battle. At first you should choose to recruit many units of light infantry to send against the many lightly defended neutral cities. Later, as enemy troops grow in numbers and quality, you must decide whether to recruit a unit of light infantry each turn, or a unit of cavalry that costs several turns. The variety of troop types, ranging from elven archers to wolf-riders and pegasi, adds a lot to the colorfulness and complexity of the game.

The best features of Warlords are its beautiful color graphics, nice sounds, and useful report screens. If you want to locate all your heroes, there's a report screen for that. If you want to check on the type of troop a city is assembling, you just click on the city and the production screen pops up. The production screen includes a small map of the continent where you can click on the other cities you control and check what troop type they are producing; you don't have to scroll all over the much larger main map. Other report screens tell you how many cities each warlord controls, what new troops you obtained this turn, who has the most gold, where the various ruins are and which have been ransacked, who has de-



Hero at the Crossroads In the left window, Lord Percivale of Elvallie is poised to attack a neutral city. In the window on the right, you can click on any area of the continental map and get a close-up view of that area (shown in the left window).

clared war against whom, and who's ahead in the race to victory.

One drawback of the game is that moving your troops around gets tedious as your army gets larger. Another drawback is that, even at the highest level of difficulty, the computer opponents are not quite challenging enough for an experienced war-gamer. Strategic Studies Group, the distributor of Warlords, notes that this is not a problem when playing against one or more human opponents. All in all, Warlords is a pleasing hybrid of a strategy game in a fantasy world. And I've learned not to trust anyone named Lord Bane.—TOM MORAN

Contact and Project Management

Office Manager 2.1

PROS: Easy to set up; easy to use; tracks both phone calls and correspondence; handles mail merge and envelope printing for mailing lists. **CONS:**

Slow when using address books with 100 names or more; doesn't include fee calculation in job log. **COMPANY:** White Crow Software (802/658-1270).

REQUIRES: Mac Plus; 2MB of RAM; hard drive; System 6.0.5. **LIST PRICE:** Office Manager \$99; Office Manager Remote \$79; Office Manager plus Mail Manager \$149.



SOMETIMES THE MOST EFFICIENT tools are the simple ones. If you need to keep track of your business contacts and correspondence, it just might be that simple management software like White Crow's Office Manager will fit the bill.

Office Manager, which requires HyperCard 2.0 to run, is a series of HyperCard stacks that lets you maintain the names and addresses of your clients, print envelopes or labels, and dial any phone number in your address list. Each stack is integrated, so moving between tasks is seamless.

The main stack, Office Manager, is designed to maintain an address list. This list

not only includes the names and addresses of contacts, but also has space for multiple phone numbers, fax numbers, a client classification (or keyword), and any additional notes you might want to add. If you are keeping track of the jobs done for a client, the Office Manager stack can track the time you spend for each job and can maintain a list of the telephone calls and correspondence exchanged with that client.

Office Manager also has the ability to link to form letters as well as individual letters to make your correspondence chores easier. Whenever you're in Office Manager, just by pushing a button, you can send a form letter or create a new letter within the stack to send to a particular client (or list of clients). The stack also lets you print an individualized fax cover sheet.

The letter editor within Office Manager isn't a full-featured word processor; it's merely enough to get the words down without any special styles or formatting. If you want to create a fancier letter, an Office Manager option lets you open your favorite word processor. The name and address of the client is automatically pasted into the new document in the word processor, making writing a bit easier. All these letters are indexed with an automatically assigned four-digit ID by Office Manager for future reference.

To complete the correspondence tasks, Office Manager also lets you perform a mail

merge between addresses selected within the stack and a letter from your word processor. One note, though—if you want better control of periodic direct mailings, you should consider purchasing Mail Manager to supplement Office Manager. Finally, the stack lets you print either envelopes or mailing labels from a list of selected addresses. Individual labels can easily be printed using the LabelWriter from CoStar Corporation.

The Turbo Dialer stack can be used with a modem and keeps track of the time spent on each modem call. Unfortunately, none of the Office Manager stacks let you insert a fee rate for converting call times to actual fees within the log.

The Office Manager stacks are designed to be used in a main office. Office Manager Remote offers much the same functionality, but is meant to be used by mobile workers. The Remote stack has an address list merge, which allows you to update the address lists found on two different Macs if changes are made while you are on the road.

Office Manager is simple but powerful. It makes the job of tracking phone calls, as well as corresponding, easier. If Office Manager has any shortcomings, it's the reliance on HyperCard, which can make many tasks slower when a database gets to be larger than 100 clients; if you have a Mac IIsi, IIfx, or Quadra, it takes many more names to slow down operations.—DAVE KOSIUR

**With CD Express,
now anybody can enter
the world of CD-ROM.**

**NEC's Computer
Systems.**
Our full line
of MultiSync®
monitors,
Image™ Series
PCs and
MultiSpin™
CD-ROM
readers make
up the ideal
CD-ROM
system.

Take a deep breath, let out a loud leap into the world of CD-ROM. Explore the greatest moments in baseball history. Dive into the world of CD-ROM. Explore the great cities of the world. Relive the most challenging, interactive adventure games. With the CD Express package from NEC, all of this is possible. And more. All it takes is your IBM PC® (or 100% compatible) or Macintosh® computer system and \$499. CD Express includes NEC's CDR-25 MPC compliant reader, stereo speakers and 10 interactive CD-ROM titles (over \$1000 retail value). Only NEC gives you this much for so little. CD Express. All it takes is \$499 to jump right in. For more information call 1-800-NEC-INFO.

CD EXPRESS™ FROM NEC \$499*

**CD-ROM software
included for IBM PC:**

LucasFilm™ Games Loom™
Publish It!™
Great Cities of the
World, Vol. 2
Interactive Storytime™
Total Baseball
The Family Doctor
GeoWorks CD Manager™
The Software Toolworks™
Reference Library
Bureau Development Inc.,
Best of the Bureau™
Ultima VI The False Prophet/
Wing Commander™


**CD-ROM software
included for Macintosh:**

LucasFilm™ Game Favorites
Publish It!™
Great Cities of the
World, Vol. 2
Interactive Storytime™
Total Baseball
The Family Doctor
The Software Toolworks™
World Atlas
Discis Books™ Aesop's
Fables
The Manhole™ CD-ROM
Bureau Development Inc.,
Best of the Bureau™

*Suggested Manufacturer's Retail Price.

MultiSync is a registered trademark and CD Express, MultiSpin and Image are trademarks of NEC Technologies, Inc. All other trademarks are property of their respective owners. © 1992 NEC Technologies, Inc.



Because  is the way you want to go.
Circle 16 on reader service card

NEC

File-Updating Utility

UpDiff 1.0

PROS: Innovative; easy to use. **CONS:** All users need a separate copy of the program; minor documentation flaws. **COMPANY:** KyZen Corporation (609/354-3863). **REQUIRES:** Mac Plus; System 6.0.7. Recommended: Hard drive. **LIST PRICE:** \$169.



REFERENCE FILES—SHARED DOCUMENTS such as a salesperson's price list, a contract, and a database of names and addresses—are mostly static but are updated from time to time. Sometimes these documents are small enough to fit on a disk, or can be sent via modem. But if the file is large, it can take too long to transmit, or it might not fit on a floppy. UpDiff is a utility that compares an old and a new version of a file, extracts the differences between them, and creates a difference file, which is typically much smaller than either version of the original file. The difference file can then be sent via modem or disk, or over a network, to another UpDiff user. The recipient uses the difference file and UpDiff to update the old file to match the new version of the file.

The program is extremely easy to use.

To start, you simply click on the Extract Differences button. You're prompted to select first the new version, then the old version, of the file that you want to process. UpDiff scans the two files, then creates the difference file, which it automatically names by appending the suffix .DIFF to the file name. UpDiff gives you the option of compressing the .DIFF file as it is created. To update the old file to the new version, you click on the Update Old Version button, and click on the names of the .DIFF file and the old version of the file. UpDiff combines the two files and writes the updated file to disk. If the names of the old and new files are identical, UpDiff renames the old version by adding the suffix .PREV to the file.

UpDiff worked well with most of the files I tried, creating difference files that were much smaller than the originals. In the process, I learned that making changes in some programs, such as Microsoft Excel and Adobe Photoshop, can be a problem, even if those changes appear to be minor. In such cases UpDiff creates difference files that are as large as or larger than the original file. For example, changing a Photoshop image from RGB mode to Indexed Color mode, then back again, changes the whole file. Inserting a column or row in Excel makes such a large change that the .DIFF file ends up being more than half the size of the original. The documentation warns you that Up-

Diff does not work well with programs in which large changes have been created, or with files that have been compressed by programs such as Aladdin Systems' StuffIt or Salient Software's DiskDoubler.

I have a few minor gripes about the package. If you click on the Cancel button while UpDiff is creating a difference file, the program stops the process, but leaves an empty difference file on your disk; it should erase the incomplete file. Both the creator and the user of the updated document need separate copies of UpDiff; it would be nice if UpDiff could create a stand-alone difference document that could combine itself with an old version without requiring the main application, similar to the self-extracting archives created by most compression programs. The documentation fails to mention the .PREV copy that UpDiff sometimes creates. And the package left out the phone and fax numbers of the company; a KyZen representative said the missing information is included in all packages now.

UpDiff is sold in a two-pack, one for the sender and one for the recipient of the updated files. In this time of environmental concern, KyZen is to be commended for its minimal packaging.

UpDiff basically does one thing, and does it well. I strongly recommend it for organizations that need to update large documents often.—TOM NEGRINO

Cartoon Software

Comic Strip Factory 1.6

PROS: No drawing necessary; easy and fun to use. **CONS:** Black-and-white only; time-consuming to alter bitmapped images; can't resize images; ships with only six comic strip characters. **COMPANY:** Foundation Publishing (612/445-8860). **REQUIRES:** Mac 512KE. **LIST PRICE:** \$69.95.



Megatoons

PROS: Clip art with personality; MS-DOS and Mac compatible; lots of images. **CONS:** Expensive. **COMPANY:** Creative Media Services (510/843-3408). **REQUIRES:** Mac Plus; 2MB of RAM; System 6.0. **LIST PRICE:** CD ROM \$199; 12 floppy disks \$219.



COMIC STRIP FACTORY LETS THE user build bitmapped comic characters, give them dialogue balloons, and place them into comic strip panels. The program comes with the body parts to create six characters. The body parts are treated as objects, which can be moved to a comic panel and as-

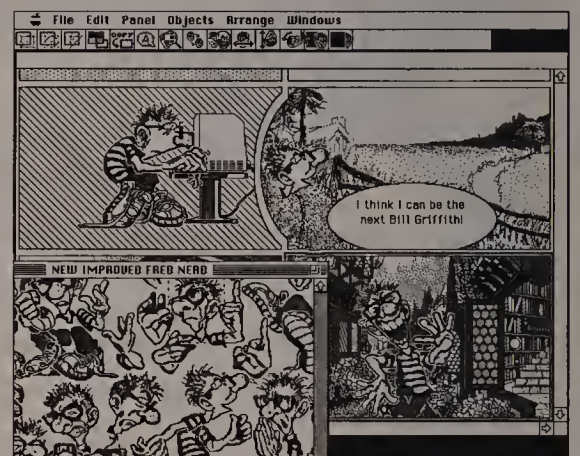
sembled into characters. You can change a character's expression using Edit Bits mode, but this involves pixel-by-pixel editing.

The group of characters (two bugs, a wizard, a horse, a nerd, and Tawny Dancer—who I think looks like a tiger-woman-elf) is pretty eccentric. Comic Strip Factory provides bitmapped, comic-style fonts and editable dialogue balloons; it automatically makes balloons fit around dialogue. The program also includes four sets of background panels.

The clear 85-page manual gives a minicourse on how to create a comic strip. The package includes a separate application, PartMaker II, which converts MacPaint-compatible files into objects that can be used as comic parts or backgrounds in Comic Strip Factory. Comic strip files can be saved in CSF format or as MacPaint files.

Two collections of additional comic strip characters and backgrounds, Kid Stuff and Office Days, are available for \$39.95 each. These collections can be converted to MacPaint format and used with other graphics programs.

Comic Strip Factory is a good tool for adding comics to newsletters, E-Mail forms, and memos. If that seems like too much work, take a look at Creative Media Services' Megatoons, a collection of 600 illustrations drawn by cartoonist Phil Frank. Many clip-art packages are bland, lifeless



Comic Strip Factory The custom icon bar gives one-click access to commonly used features. Panel shape can be highly modified.

collections of boring art, but Frank's style makes this collection clever and original.

The drawings in Megatoons are 300-dpi TIFF format files, so they can be modified by most graphics programs. The CD ROM contains Zedcor's DeskPaint DA 2.0, allowing manipulation of the images without additional graphics software (DeskPaint DA is not included with the floppy-disk version).

I like Phil Frank's art. Megatoons comes with an image index booklet that you can flip through before you open the CD or disks. If Frank's style doesn't fit your needs, CMS will refund your purchase price. CMS also offers other, smaller collections of Frank cartoons for \$50 to \$80.—JIM FEELEY

SCORE!

THE GREAT GCC PRINTER REBATE KICKOFF

Buy a GCC WideWriter™ 360, BLP™ II, BLP Elite,™ BLP IIS, or PLP™ IIS printer between now and January 5, 1993, and you'll get \$100 back! GCC's award-winning laser printers stay ahead of the game with exclusives like edge-to-edge printing, 200-sheet paper trays, straight-through paper paths, a low-power sleep mode, toner recycling, and upgradeability.

BUY A GCC PRINTER, AND GET \$100 BACK!

Our versatile WideWriter 360 delivers laser-quality output up to 17" x 22" – at an affordable price. And all GCC printers come with extras like powerful software, a trouble-free one-year warranty and toll-free support. Call 800-942-3321 for the name of your nearest dealer, or 800-422-7777, ext. 793, to order direct. Call now, and score big with GCC!

© 1992 GCC Technologies, Inc.
All listed trademarks are trademarks or registered trademarks of their respective manufacturers. GCC dealers are independent businesses and as such may offer different prices, policies, and service arrangements. In Canada, call 800-263-1405



**GCC
TECHNOLOGIES**
Peripherals With Vision™

22011U

Circle 260 on reader service card

Cordless Mouse

Cordless SuperMouse

PROS: Receiver plugs into ADB port; convenient recharging stand; spare battery included.

CONS: Only recharges when the Mac is turned on. **COMPANY:** Z-Nix Company (714/629-8050). **REQUIRES:** Any Mac with ADB port. **LIST PRICE:** \$99.



THE Z-NIX SUPERMOUSE COMES closer than other cordless mice I've tried, to fulfilling the dream of mousing without strings attached. Its rounded contour is more comfortable than many other mice, it fits my palm snugly, and the design is sleek and attractive. The two big buttons are easy to reach, and have adequate audible and tactile feedback when pressed. The left button functions like the one on Apple's mouse. A software control panel lets you program its right button to double-click, click-lock, or execute a user-specified key sequence. (Alas, lefties can't reverse the buttons' operation.)

Cordless mice are a bit like portable telephones, though: to avoid frustration, it helps if you understand their limitations. To work without a cord, the device uses infra-

red light to communicate with a receiver built into its stand, which plugs into the Mac's ADB (Apple Desktop Bus) port. If you have infrared devices, such as TV remote controls, you know they can be finicky, and the SuperMouse is no exception. In general, the mouse should face in the direction of the receiver. In my tests, cursor motion was smooth most of the time; response was erratic only when the mouse was angled sharply or when the infrared beam was interrupted by desktop clutter. (To avoid this problem, Z-Nix suggests raising the receiver slightly above the work surface.) As claimed, the SuperMouse worked up to 6 feet away from the mouse stand, but only as long as perfect line of sight was maintained.

The SuperMouse is powered by a compact nickel-cadmium battery that comes charged, so you can use the mouse right out of the box unless it's been lying on the dealer's shelf for a few months. A spare battery stows in a recharging compartment in the bottom of the stand, and swapping batteries takes only a few seconds. The stand recharges the main and backup batteries simultaneously. Because the charger draws power directly from the Mac, there's no need for a separate AC adapter. According to the manual, a full charge should be sufficient for about eight hours of continuous power, or two to three days of routine operation. During one week of heavy daily use,



Cordless SuperMouse for the Macintosh

I didn't have to change batteries once. The only drawback is that the charger functions only when the computer is turned on—if the Mac is switched off for an extended period (several months, according to Z-Nix), the batteries might discharge completely.

Although I'm not about to trade in my corded mouse, the SuperMouse is an excellent choice if you dislike untangling cords or if your work occasionally demands that you step back from the computer. Like any well-designed product, the SuperMouse works reliably, and it's attractively priced. —FRANKLIN N. TESSLER

Flight Simulator Control Hardware

The Mouse Yoke

PROS: Clever engineering; quality materials in design and construction. **CONS:** Unpadded clamp could mar desktop; works poorly with driving or shooting games. **COMPANY:** Colorado Spectrum (303/225-6929). **REQUIRES:** Mac 128K; any standard mouse; flight simulator that accepts mouse-control input. **LIST PRICE:** \$34.95.



THE MOUSE YOKE IS THE KIND OF product that makes you say "I sure wish I'd thought of that." This gadget turns an ordinary mechanical mouse into an aircraft-style steering wheel, or yoke, for use with flight simulators and similar mouse-driven entertainment software. Turning the yoke and moving it in or out gives you full three-dimensional control. Without electrical connections or—more important—extra software, The Mouse Yoke provides most of the functionality of electronic flight-simulator controls costing twice as much.

You use The Mouse Yoke by strapping the mouse onto an extruded aluminum fixture, which in turn clamps onto your desk. The mouse ball rests over a groove in the fixture, and a hefty plastic shaft attached to

a Cessna-style aircraft yoke rotates the mouse ball. Moving the yoke in and out controls up-and-down motion, and turning the yoke twists the shaft for left-right motion. The concept is stunningly simple and elegantly executed.

Part of that elegance is in quality materials. The black-anodized metal fixture has no paint to chip off, and the matching aluminum clamp has an extra-wide jaw to accommodate most desks, with sturdy metal parts and a large knurled knob. A replaceable elastic strap holds the mouse to the fixture, and the remaining parts—the shaft and yoke—fit precisely and move smoothly and solidly. My only concern is that the unpadded metal jaw could mar wooden surfaces.

The well-written manual explains in general how to configure your program to work with The Mouse Yoke and gives specific instructions for running with Microsoft Flight Simulator. Most flight simulators require you to center your controls, so that the screen display and input device agree as to what constitute the horizontal and vertical positions of your aircraft. With The Mouse Yoke, after selecting the mouse for control input, you set horizontal and vertical control sensitivities to their maximums. Next you center The Mouse Yoke's shaft and yoke, and press the program's mouse-centering key. As long as you keep your movements

smooth, The Mouse Yoke retains perfect tracking and centering; with sudden movements, the mouse ball and yoke shaft tend to slip, and sometimes after executing a few aerobatic maneuvers you'll find level flight requires an unsettlingly crooked yoke. Recentering the controls quickly squares things up, though.

Although it fares well with several flight-simulator packages, The Mouse Yoke works very poorly for driving simulations, such as Velocity Development's Spectre, the tank-driving game (Colorado Spectrum has announced a Mouse Wheel, specifically for driving simulations). The Mouse Yoke is also inconvenient for simulations using the mouse button as a firing control, because the mouse is mounted up on the fixture away from your fingers. Electronic plug-in controls have flight controls installed in a yoke or joystick right under your finger, but The Mouse Yoke's design precludes this.

All in all, though, The Mouse Yoke is a reasonable alternative to electronic plug-ins. You get 90 percent of the functionality for 50 percent of the price—not a bad trade-off. If you think a mouse alone is good enough for flying a Mac around Chicago, your first excursion with The Mouse Yoke may surprise you. A few figure-eight turns will convince you that steering with a bar of soap is for the—well, for cheapskates.

—MEL BECKMAN

EVERY GREAT BOOK NEEDS A GREAT PRINTER.



WriteMove II. The Portable Executive Printer for the PowerBook.

The Macintosh® PowerBook™ is unquestionably a great book. And now it has the great printer it deserves: the new WriteMove® II from GCC – simply the best portable printer you can buy for your PowerBook. At just 2.5 pounds, the battery-powered WriteMove II fits easily in a briefcase. So you can print crisp, 360 x 360 dpi laser-quality output anywhere – in the air, on the road, or in a hotel room. You can negotiate a contract over dinner, print it out,

and sign it over dessert. Print on plain paper, envelopes, or even transparencies. The WriteMove II comes with ATM™, 21 fonts, background printing and On-Screen Page Preview. Plus, there's a one-year trouble-free warranty, and toll-free support. All for just \$599. Simply call 800-942-3321 for the name of your nearest GCC dealer, or 800-422-7777, ext. 136 to order direct. Because every great book deserves a great printer.



© 1992 GCC Technologies, Inc. All listed trademarks are trademarks or registered trademarks of their respective manufacturers. GCC dealers are independent businesses and as such may offer different prices, policies, and service arrangements. In Canada, call 800-263-1405.

22012T

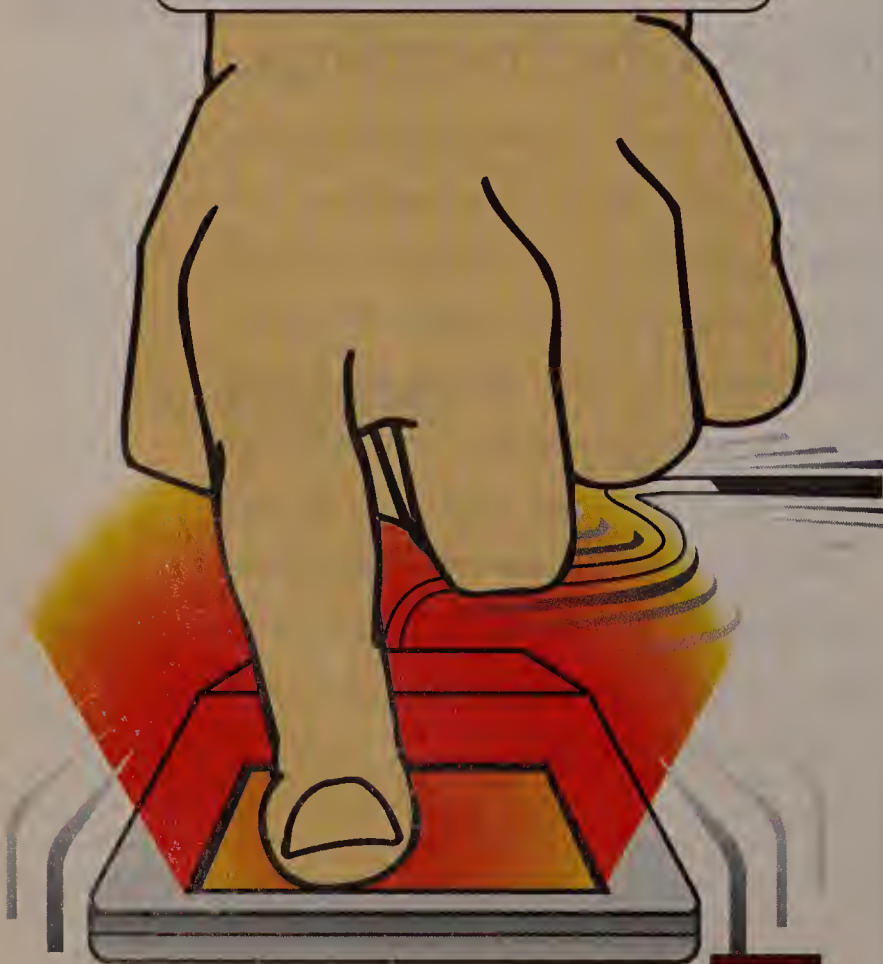
Circle 262 on reader service card

LAUNCH A MAC ATTACK!

One click - that's it. Whether you're a novice or a power user, OnCue II gives you more control over your desktop. Directly find, retrieve (up to the last 100 files used), move, copy, delete, and rename files or folders - without using the Finder. Quickly locate a file by name, format, creator, date created or modified, and file size. Instantly launch any file, application, or groups of files with one click. Launch any file from the keyboard. Even launch files that have missing applications by assigning another application of your choice. Launch your Mac Attack with On Cue II by calling ICOM Simulations, Inc. at **1-800-877-4266.**



OnCueII



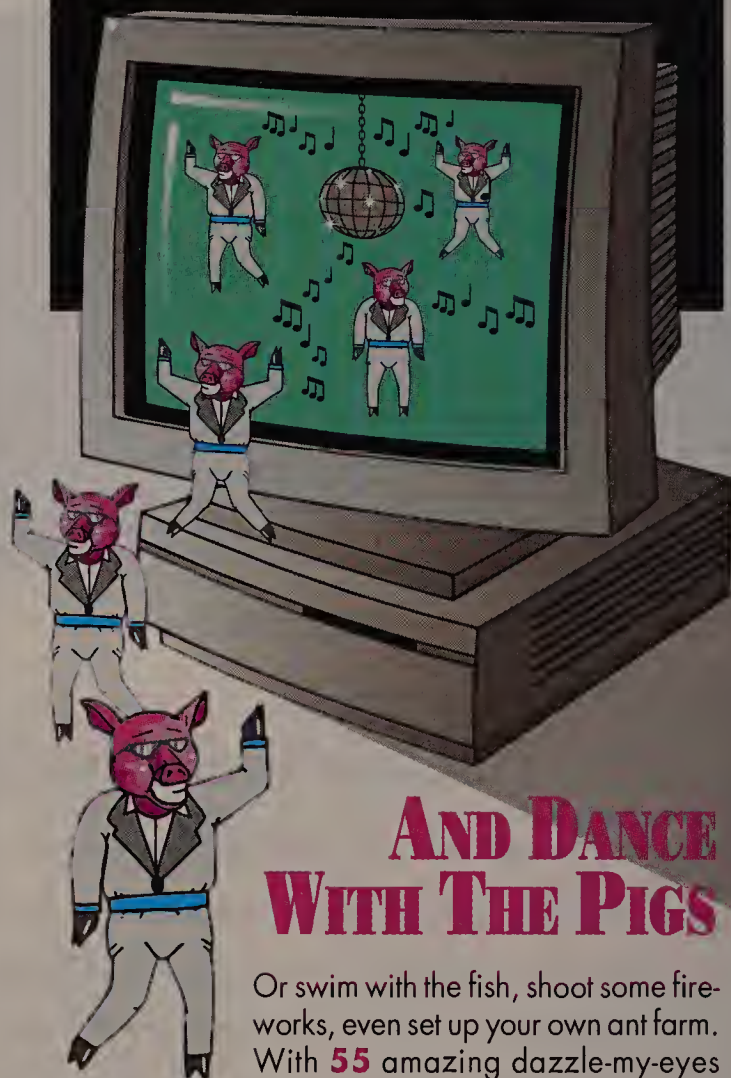
ICOM
ICOM SIMULATIONS, INC.

648 South Wheeling Rd.
Wheeling, IL. 60090
(708) 520-4440

ONLY
\$99.95

Circle 138 on reader service card

TAKE AN Intermission FROM OTHER SCREEN SAVERS



AND DANCE WITH THE PIGS

Or swim with the fish, shoot some fireworks, even set up your own ant farm. With **55** amazing dazzle-my-eyes screen savers—including three **playable** game screens. Intermission does double duty by preventing monitor burn-in and providing enhanced system security and advanced password protection. You even have the option of importing modules from other screen savers or creating your own. And now, Intermission comes with incredible tickle-my-ears sound! Available for both Macintosh or Windows. Start dancing with the pigs now!

Call ICOM Simulations, Inc. at
1-800-877-4266.



ICOM
ICOM SIMULATIONS, INC.

648 South Wheeling Rd.
Wheeling, IL 60090
(708) 520-4440

ONLY
\$39.95

Circle 148 on reader service card

The Desktop Christmas

BY DAVID POGUE

COMING UP WITH ORIGINAL holiday gifts for the Mac owners on your list is never easy. I mean, how many years in a row can you give somebody a mouse pad? You can get by with giving disk wallets or dust covers, I guess, as long as you don't mind seeing a lot of that expression people have when they get ties.

After weeks of exhaustive research (going through five or six catalogs, at least), my elves and I merrily offer the following more creative suggestions. Each item meets our stringent East Pole qualifications: (1) Nothing over \$50. (2) No games, because they're covered elsewhere in this issue. (3) Nothing buggy, cheesy, or predictable.

After Dark for Macintosh 2.0

AFTER DARK (BERKELEY SYSTEMS, \$49.95) is the screen saver made famous by the absurdist Flying Toasters. When you haven't used the Mac for several minutes, After Dark blackens the screen, and until you touch the mouse or keyboard again, colorful, animated images—like fish, or space invaders, or of course, winged toasters—bounce around the screen. The ostensible purpose of a screen saver is to prevent a static image from burning a permanent ghost picture into the screen. But come on—have you *ever* seen a permanent image etched on the screen? Me neither.

No, you give someone After Dark for more important reasons. First, status; watching one of those complicated-looking, Spirograph-type After Dark animations, you can't help but conclude that the Mac's owner is a super-proficient brainiac. Second, After Dark's spin-offs can take care of the next few years' worth of year-end gifts; next December you can give More After Dark (Berkeley Systems, \$39.95), a set of additional goofy and wonderful modules, like the Lawnmower Man who drives his tractor across your spreadsheet. Year after that you can give Art of Darkness, a disk with still more modules, tucked into the back cover of a funny, fluffy trifle of a book of the same name (Peachpit Press, \$19.95; written by *Macworld* contributing editor Erfert Fenton, if that makes any difference). And if computers still require screens at all in 1995,

you can complete the collection with Cool Mac After Dark, another book-disk set (Hayden Publishing, \$19.95; written by Ross Scott Rubin).

Surge Reactor Remote

I KNOW WHAT YOU'RE THINKING: AS holiday gifts go, a surge-protected power strip has about as much holiday cheer as a tub of axle grease. It's not even imaginative; you can get a power strip at any hardware store. And even though these strips let you turn on all your computer appliances with one button, you have to crawl around behind the furniture to get at the on/off switch.

Good ol' American ingenuity solved the problem, coming up with a dandy new riff on the old multiple-outlet theme: a *remote-controlled* power strip (Global Computer Supplies, \$43). The surge-protected outlets on this rugged baby lie amid the dust bunnies behind your desk. But the on/off switch is on the end of its own 4-foot cord, which you can mount at desk level, strap to your thigh, or whatever. In one fell swoop, you'll protect both the recipients' equipment (against those troublesome lightning bolts) and vertebrae.

From Alice to Ocean

FROM THE TITLE, YOU MIGHT ASSUME that this coffee-table oeuvre is an alphabet book. Nope; it's a stunningly photographed, brilliantly written account of a 27-year-old woman's solo camel ride across the Australian desert. It was photographed and produced by Rick Smolan, that guy who first created the *A Day in the Life* photo-book series. The beauty of this book takes the breath away, and the writing's wit, insight, and honesty is remarkable. (Typical candor: Author/camelist Robyn Davidson reveals that photographer Smolan's lurking presence on the trip was a major irritant.)

What makes the book a Mac lover's gift, though, is the CD ROM bundled inside the cover. It contains a photo-rich, narrated slide show of the story, complete with maps, interactive detours, and QuickTime video clips. The disc makes the overall package (Ad-

dison-Wesley, \$48.95) a doubly fascinating and appealing gift for the armchair traveler who'd rather read, watch, and hear about a 1700-mile desert than cross it.

(There is a second silvery disc included: a Kodak Photo CD filled with pictures. The Photo CD and the regular CD ROM each requires a special disc player, of course. If your gift recipient isn't quite so equipmentally endowed, mention that the discs make wonderful earrings.)

AutoMouse

WHEN THEY FIRST STARTED SELLING those cute, fuzzy mouse covers that look like actual mice with big doleful eyes and adorable little whiskers, I smiled—but I swore they'd never catch me dead with one of those on *my* mouse. For the red-blooded, fast-lane American, those fluffy slipcovers are lethal to whatever studly machismo you've managed to make part of your social image.

At last, there's something to cover the mouse that's more the style of the image-conscious powermonger: a fire-engine-red Corvette. It's sleek, shiny, and snaps easily onto the mouse (concealing it completely except for the telltale gray cord snaking out from under the front grille). You rest your hand on the roof and click on the hood to activate the mouse button. (If you're the kind whose self-esteem blossoms by tinkering with the innards, you can adjust the feel of the clicking by adjusting a screw that's—where else?—under the hood.) The AutoMouse (Suntime, \$19.95) looks sporty on your desk, and when you're on a boring phone call and nobody's looking, you can drive it up and down the sides of your Mac and make *bbrrrrmmmm* sounds with your mouth.

Wrist Rescue III, Wrist Saver, Mouse Paw

THE DESIGNERS OF THE Macintosh PowerBook wowed the industrial-design community with their cleverness: by shoving the keyboard closer to the screen, they created a handy wrist deck. As you type, your palms rest on this flat, smooth zone—to the horror of typing instructors everywhere, *continues*



*A peek
into Santa's
high-tech
goodie bag*

no doubt, but much more comfortably than on any other laptop computer.

If your gift-list people are stricken with PowerBook envy, get them either the Wrist Rescue III (Precision Line, \$7.95) or the Wrist Saver (\$14.95), which do for normal keyboards what the wrist rest does for PowerBooks. The former is a simple, thick foam pad that snuggles against the edge of the keyboard. The latter is a larger, Plexiglas affair on which the entire keyboard sits, so that the foam-padded part is always held in perfect position relative to the keys.

The company claims that people have been loving the tiny foam Mouse Paw (\$7.95), too, which Velcros onto the mouse and provides a wrist-resting station for it. My hands must be longer than the Mouse Paw designers', because my wrist winds up overshooting the back end of the Mouse Paw—but consider it a stocking stuffer for your small-wristed friends.

Fun Physics 1.2

IN HIGH SCHOOL YOU LEARNED ABOUT physics. Remember? It's the study of bowling balls dropped off the Leaning Tower of Pisa, and people on infinitely fast skateboards throwing balls to each other in outer space, and returning to Earth before they left. Or something.

Turns out that physics didn't crumple up and die when we graduated. The darned thing is everywhere, as demonstrated by this cool program (Knowledge Revolution, \$99, which violates my \$50 rule, but that's life). Instead of irrelevant things like balls falling off buildings, Fun Physics illustrates (with animated line drawings) how physics affects *important* things—basketballs hitting the backboard, dominoes falling, and baseball games on the moon, for example. By adjusting the settings, you can see how dominoes would fall in zero gravity, or how a baseball bat would work if coated with rubber cement.

If you're really motivated, you can use Fun Physics' built-in drawing tools to create your own objects, each with its own mass, velocity, air resistance, and surface stickiness, then set them all crashing into each other in various nerdy ways. Seeing everything slowly animated on the Mac screen doesn't have quite the visceral splatteriness of, for example, David Letterman dropping watermelons off of the GE building. But there's much less inconvenience to passersby.

Heizer Templates

IF YOU REALLY WANT TO SURPRISE your gift recipient, order something from Heizer Software's catalog of Excel and HyperCard projects. You can almost always find *something* useful—or at least



Walking Miles with a Camel The Alice to Ocean CD ROM's navigation screen lets you choose which of six journey legs you want to watch.

bizarre. For example, this year there's the one and only Phone Number Names spreadsheet (\$12). You type in your phone number, and Phone Number Names gives you every possible combination of English words you can make out of it (so you can tell people that your number is 1-800/HOW R YOU, or something). It also does the reverse, translating JKL-MNOP into 555-6667 so you don't have to hunt and peck.

Other Heizer offerings are ideal if you have friends who will soon be hearing the pitter-patter of little feet. Depending on which kind of little feet we're talking about, consider either the Baby Name Scrambler or the Horse Race Analyzer. The former (\$9) digs into its database of 1500 boys' and girls' names, and generates over 1 million possible combos (Luther Dean, Ethel Stella, Xerxes Norman, and so on), and the latter (\$15), of course, analyzes horse races.

Finally, consider giving your company's resident speechmaker Speech Master (\$15), a HyperCard stack. You paste in the text of the speech, and the stack tells you how many minutes you'll be on the podium droning away. Good way to give some gasbag a hint. (Perhaps you'd best be a *secret* Santa on this one.)

System 7 Pack

IF ONE OF YOUR BUDDIES IS CONTINUALLY complaining about how System 7 makes the Mac slower, gift-wrap this little shareware beauty from Insanely Great Software and toss it under the tree. Written by teenage New Jersey wunderkind Adam Stein (whose shareware act is so together that he has an 800 number and takes credit cards), System 7 Pack clobbers a bunch of System 7 annoyances: (1) it speeds up file-copying in the Finder by three times; (2) makes windows open faster; and (3) adds a Quit menu to the Finder, so you can reclaim that precious 300K of memory when you're juggling programs. What I find fascinating is that several commercial-software companies—no doubt aghast at the low cost of this

profoundly useful shareware morsel—have rushed into the market with shrink-wrapped imitations. I say dial up America Online (or hie thee to a user group) and get the original (\$29.95 requested).

(And if your mom, like mine, would say that handing over a gift-wrapped floppy disk rates a tad too high on the tackiness scale, consider Scotch-taping the disk to a nice box of chocolates.)

Beyond CyberPunk

JUST AS RUMORS OF HYPERCARD'S demise started cropping up at Macworld Expos, somebody came along and injected fresh weirdness into the stack world. Beyond CyberPunk (The Computer Lab, \$29.95) is an obvious labor of love: a 5-megabyte HyperCard voyage through the technofuturistic minimovement known as cyberpunk, where counterculture meets high tech, *Max Headroom* meets *Brazil*, and small-circulation cult magazines fan the flames.

This sound effects-laden, graphically intense electronic book contains a series of essays on cyberpunk. The article topics vary dramatically between fact and fantasy; real world and future world; movies, modems, art, the future, comic books, sci fi, and so on. The only common traits among authors are (1) a fascination for high tech; (2) a belief that (*Blade Runner* director) "Ridley Scott is God," as the stack puts it; and (3) an unshakable belief that there's an apostrophe in the possessive word *its*. No matter; in its childlike wonder, it's fascinating and fun.

Crisp Mountain Apples

THIS IS THE GIFT FOR THE MAC OWNER who'd consider a computer-related gift to be a wee bit on the geeky side. It's a 5-pound box of apples (we're talking actual fruit, here, the kind that Steve Jobs ate in elementary school). It's not a pun or anything—just *really* huge, juicy, unblemished, hand-packed, air-expressed, perfect, shiny apples for which you will be profusely thanked. I couldn't resist mentioning them (Harry & David, \$19.95).

Bundle the box with a QuickTime movie of yourself in a silly Santa suit—or a Word file with a holiday poem—or a HyperCard stack that spells out your good wishes—and you've got yourself a blockbuster present that means something, doesn't cost much, and tastes pretty darned good. **m**

See *Where to Buy* for contact information.

Contributing editor DAVID POGUE wrote the ideal gift for the Mac novice—the hilarious and informative *Macs for Dummies* (IDG Books Worldwide, 1992). When it comes to self-promotion, he claims to have no shame.

CompuServe. Where to turn for help.

Or for support, information, entertainment, communications, or just about anything you need to make life a little bit easier, and a lot more interesting.

For more information about CompuServe, just mail this card, or call 1 800 848-8199.

Name _____

Address _____

City, State, Zip _____

Telephone (____) _____ **CompuServe**

MacWorld/Dec.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 407 COLUMBUS, OHIO

POSTAGE WILL BE PAID BY ADDRESSEE

CompuServe®

ADVERTISING DEPARTMENT

PO BOX 20212

COLUMBUS OH 43220-9988





Now available for computers.

Files disappearing? Your Mac® not talking to your printer?
Your IBM® fighting with the rest of your network?

Don't worry. With CompuServe, you'll always have someone, somewhere to turn to for help in an emergency.

CompuServe gives you access to a world of support through hardware and software forums. Whether you're a novice or an expert, you'll always have problems, questions, concerns. No matter how basic — or complicated — just enter the appropriate forum. Your message will reach thousands of people with the expertise you're looking for. People who've solved the problems you're dealing with, and who will share the solutions with you. You'll even reach the authors of some of the most popular

software programs. And find information not available in any manual.

In addition to support, CompuServe also gives you more choices, by offering hundreds of in-depth online services.

CompuServe's hardware and software support forums. The only call you have to make to take the panic out of computer problems.

For more information or to order, see your computer dealer or call 1 800 848-8199. Outside the United States, call 1 614 457-0802.

CompuServe®

The information service you won't outgrow.

Circle 159 on reader service card.

Now there's a Doubler for every single Mac.

Data compression is an essential tool for Macintosh®. But different users need different functions. That's why Salient offers a choice.

Whether you want hard disk compression that's completely automatic, or a hands-on utility with a variety of functions—or both—Salient has the "Doubler" for you.

AutoDoubler™, the fast, automatic, hard disk maximizer.



AutoDoubler is the effortless way to save hard disk space. You just double click to install and AutoDoubler does the rest. It compresses everything you want compressed, increasing disk space up to 100% or more.

AutoDoubler won't interrupt your work. It compresses only when your system is idle. It's compatible with other utilities. And it's so fast, you'll hardly notice it's there—just click on a file and it opens, pronto.

AutoDoubler, the solution to your hard disk space problems, is now available in a 10-pack.

.....
"The true beauty of AutoDoubler is its complete invisibility."
— Publish magazine, 2/92
.....



DiskDoubler™, the hands-on compression tool.

DiskDoubler makes it easy to copy large files to diskette, speed modem transmission, archive data, or simply free disk space.

DiskDoubler shrinks files an average of 50%, so it saves you time and money when sending via modem. It also creates self-expanding archives, so files can be opened without DiskDoubler. "Split" and "combine" functions give you extra flexibility in archiving and copying.

DiskDoubler is fast and easy—use it for all your hands-on compression needs.

.....
"Not only is it [DiskDoubler] among the top speed and efficiency performers, but it's utterly safe for your data."
— David Pogue, MacWorld, 3/92
.....

Two Doublers are better than one.

For complete flexibility, use AutoDoubler and DiskDoubler together. They're 100% compatible, 100% safe.



The compression company has expanded!

Salient is now a part of Fifth Generation Systems. That means our customers will enjoy the backing of a world leader, including a one year money back guarantee and 24-hour, 7-days-a-week, toll-free telephone support.

Salient®

A FIFTH GENERATION SYSTEMS COMPANY • 4 1 5 / 3 2 1 - 5 3 7 5

Fifth Generation Systems, Inc., 10049 N. Reiger Road, Baton Rouge, LA 70809 Sales Number: (800) 873-4384, Technical Support: (800) 766-7283
AutoDoubler, DiskDoubler, and Salient are trademarks of Salient Software, Inc. Macintosh is a registered trademark of Apple Computer, Inc. © 1992

Circle 39 on reader service card

New Products

The Latest Macintosh Releases

EDITED BY EVAN COOPER

THIS SECTION COVERS
MACINTOSH
PRODUCTS FORMALLY
ANNOUNCED BUT
NOT YET EVALUATED
BY MACWORLD.
ALL PRICES
ARE SUGGESTED
RETAIL. PLEASE CALL
VENDORS FOR
INFORMATION
ON AVAILABILITY.

HARDWARE

AsantéPrint

An Ethernet-to-LocalTalk hardware converter that connects up to two LocalTalk devices—such as printers or network modems—to an Ethernet network. The device comes with a management application that provides managers with network statistics for diagnosing problems on the network; the software supports AppleTalk Phase 1 and Phase 2. AsantéPrint has one DIN-8 LocalTalk port and Ethernet connections for thick and thin coaxial cable or thick and 10BaseT cable. \$549. Asanté Technologies, 408/752-8388, 800/662-9686; fax 408/734-4864.

DCS 200ci

A color digital camera that features a Kodak CCD array built into a Nikon 8008s camera body with a built-in SCSI port for connecting the camera directly to a Macintosh.



DCS 200ci

The device provides autofocus, exposure control, and motorized advance and can store up to 50 images within the camera. A driver for Adobe Photoshop is included. \$9995. Eastman Kodak Company, 716/724-6888, 800/242-2424; no fax.

Ether10-T Starlet

A nine-port 10BaseT Ethernet hub that features eight 10BaseT connections and one thin Ethernet connection. The device has three LEDs for each port, that show traffic, link integrity, and collisions. The thin Ethernet connection enables users to attach the Starlet to an Ethernet backbone. \$399. Farallon Computing, 510/596-9000; fax 510/596-9020.

FastCache Quadra

A cache card for the Quadras that has a 128K zero-wait-state static RAM cache and includes proprietary QuadraBoost software designed to further increase performance. The card stores in-



FastCache Quadra

formation frequently requested by the CPU in static RAM, rather than in the relatively slow DRAM. For Quadra 700 and 900 \$299; for 950 \$449. Day-Star Digital, 404/967-2077, 800/962-2077; fax 404/967-3018.

Impala 24/96

A portable fax modem weighing 4.2 ounces that runs on four AA batteries and automatically goes into sleep mode when it is offline. The modem sends and receives faxes



Impala 24/96

at 9600 bps and data at 2400 bps; it supports popular error-correction and data-compression protocols. Included software from STF Technologies allows users to create and edit phone books from database and word processing applications. 1MB min. memory. \$399. Omron OfficeAutomation Products, 408/727-1444, 800/362-4411; no fax.

MaCNet-NU-420

A coaxial NuBus Ethernet board for Mac II's that contains an AUI and a BNC connector. MaCNet-NU-420 is IEEE 802.3 compliant, uses CSMA/CD packet passing, and has a 10 Mbps transfer rate, according to the company. The product has a lifetime warranty. \$249. MaCNet, 408/954-8888, 800/486-2638; fax 408/954-8866.

Max

A display board that supports a resolution of 2048 by 1536 pixels and can display 256 shades of gray; it also includes a built-in hardware lookup table and supports NuBus block-mode cycles. The board uses the Texas In-



Max

struments 34020 Graphics System Processor, a fully programmable graphics processor. A graphics and image processing library with a variety of graphics primitives and image processing routines is bundled with the board. \$6995. Dome imaging systems, 617/895-1155; fax 617/895-1133.

NB-DSP2305

A digital signal processing and analysis board for Mac II's that, when used with any of the company's data-acquisition boards, allows systems developers to acquire analog and digital signals and to process and analyze the data. The board uses a 40MHz version of the TI TMS32C30 32-bit floating-point DSP chip that offers 40 MFLOPS of processing power, 64K of zero wait-state memory, and a NuBus master interface that can directly interface with Macintosh NuBus boards. The product ships with a library of Think C and MPW C DSP routines. \$4995. National Instruments, 512/794-0100, 800/433-3488; fax 512/794-8411.

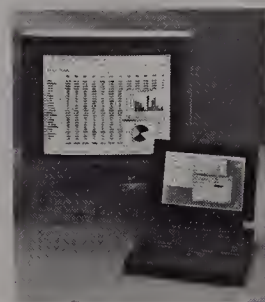
NoteBook KeyPad

A numeric keypad for the PowerBooks that has numeric keys, mathematical function keys, and arrow keys. The ADB device has a homing bump on the 5 key for touch typists, and 15 function keys. \$149.95. Kensington Microware, 415/572-2700, 800/535-4242; fax 415/572-9675.

PowerBase I

A 1-bit monochrome display adapter for the PowerBooks and compact Macintoshes that allows these computers to work with most monochrome monitors ranging from 12

inches to 21 inches in size with screen resolutions from 640 by 480 to 1152 by 872 pixels. The external device connects to a SCSI port and is also designed to function as a monitor stand. The adapter has two SCSI ports and three different video connectors. \$599. Lapis Technologies, 510/748-1600, 800/435-2747; fax 510/748-1645.



PowerBase I

PowerModem III

An internal fax modem for the PowerBooks that sends and receives faxes and data at 14,400 bps and supports many data-compression and error-correction standards. It also conforms to the Group III fax specifications and includes PSI's fax software that sends and



PowerModem III

receives faxes in the background. The software automatically wakes up the PowerBook to receive a fax, stores multiple phone books, and keeps an activity log of transmissions. \$799. PSI Integration, 408/559-8544, 800/622-1722; fax 408/559-8548.

Quad Cache

A PDS cache card for Quadras that uses 128K of static RAM to keep a

copy of the most recently used instructions and data in memory and is designed to reduce the number of CPU wait states. The card uses a unified cache architecture and comes with Cache-o-Matic cache-management software, and the company claims it is fully compatible with the Quadras' 68040 CPU. The Quad Cache 25 is designed for the Quadra 700 and 900, and the Quad Cache 33 is designed for the 950. Quad Cache 25 \$349.95; Quad Cache 33 \$449.95. Hash Tech 408/988-2646; fax 408/492-1140.

Quicktel 9624LP

A compact, 8-ounce modem that sends and receives data at 2400 bps, sends faxes at 9600 bps, and receives faxes at 4800 bps. The device supports most common error-correction and data-compression protocols. The product is compatible with all Group III fax machines and comes with BitCom and BitFax communications software and a DB25-to-DB9 converter. \$216. Logicode Technology, 805/499-4443, 800/735-6442; fax 805/499-8588.

Vandal

A board for the Mac SE that is an accelerator and monochrome video board and includes a 68882 math coprocessor. The board is built on a 68030 processor running at 50MHz, and the included software comes with SANE routines designed to speed up math functions in applications that don't recognize a math coprocessor. With the Vandal installed, users can expand a Mac SE's memory to 16MB, and a control panel lets users

continues

Removable, Rewritable, Remarkable.

Introducing DataPak™ MO/128, the latest thing in magneto-optical storage from Mass Microsystems.

Slip 128MB of storage into your shirt pocket. Send it in a courier envelope, or secure it in your desk drawer. DataPak MO/128 stores an incredible 128MB onto a DataCart™ cartridge that's nearly as small as a floppy disk. And like all DataCart cartridges, this one includes a Mass Micro exclusive: *Our Lifetime Warranty.*



The best of both worlds. DataPak MO/128 gives you both removable drive performance and optical drive reliability.

DataPak performance is nearly twice that of earlier optical drives. And because DataPak MO/128 incorporates high-technology non-contact laser design, loss of data is virtually eliminated, keeping your precious data where you want it when you want it.

Give us a call and discover why DataPak MO/128 is the best removable storage solution for you.

 **MASS**
microsystems
1-800-522-7979

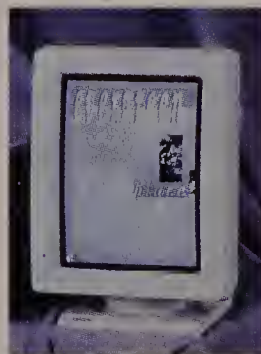
©1992 Mass Microsystems, Inc., 810 West Maude Avenue, Sunnyvale, CA 94086. Phone (408) 522-1200. Fax (408) 733-5499. Mass Microsystems and the Mass Microsystems logo are registered and Mass Micro and HitchHiker are trademarks of Mass Microsystems, Inc. Mac and Macintosh are registered trademarks of Apple Computer, Inc.

Circle 207 on reader service card

turn off the board's 030 data cache, instruction cache, and math co-processor. The video circuitry supports resolutions of up to 1152 by 870 pixels. \$1199. Extreme Systems, 206/575-2334, 800/995-2334; fax 206/575-3928.

Ven-Tel Pocket Modem 24 with Fax

A 9600-bps fax modem that runs on an external power supply or a 9-volt battery and weighs 6 ounces. The device supports V.42 and MNP Class 10 error correction and V.21, V.22, Bell 212A, and Bell 103 protocols, as well as Group III, Class 1, and Class 2 fax standards. Quick Link II Fax communications and fax software is included. \$229. Ven-Tel, 408/436-7400, 800/538-5121; fax 408/436-7451.



ViewPort

ViewPort

A 15-inch monochrome portrait display that connects to a PowerBook via the SCSI port and can also be connected to a compact Macintosh. The monitor has a built-in 20MHz 68000 processor that handles video processing and on-board QuickDraw acceleration. The included software allows users to work on the Mac's screen and the ViewPort's screen at the same time. The monitor has a screen-refresh rate of 72Hz and a resolution of 640 by 870 pixels at 80 dpi. \$799. Mirror Technologies, 612/633-4450, 800/654-5294; fax 612/633-3136.

SOFTWARE

AXA WaterColor

A paint application designed to resemble painting with watercolors; allows users to adjust paint, water, paper wetness, and brush tools. User can preview color and water

mixtures before painting with them and can save favorite combinations for later use. Brush types like nylon bristle, airbrush, and spray gun can also be chosen. 4MB min. memory. \$79. AXA Corp., 714/757-1500; fax 714/757-1766.

Blackjack Trainer

A program designed to train users to play blackjack at a professional level, using drills that teach basic strategy and five card-counting strategies. The application can be configured to use the rules of almost any casino, and it reports playing errors and reinforces correct playing decisions. Users can run through several counting and strategy drills or play in simulation mode. 512K min. memory. \$75. ConJelCo, 412/362-2669; no fax.

Bola32 2.0

An object-oriented character-generation and presentation package for creating 32-bit antialiased text and graphic overlays for traditional video. The software lets users lay out video pages, slides, and desktop presentations, and it supports an 8-bit key/alpha channel for laying text over a live video source. The program has two NTSC color palettes, and offers texturing, video transparency, drop depth shadows, and text-rotation features. Bola32 supports Adobe PostScript Type 1 and TrueType fonts. 8MB min. memory. \$995. Avid Technology, 508/640-6789; fax 508/640-1366.

ColorPrinter Software

A printer utility that lets users generate a reference guide for a color printer that displays how the printer outputs the more than 2000 colors available in the Trumatch System. By comparing the resulting reference guide to a Trumatch Colorfinder fanbook, users can see how accurately their printer outputs these colors. Users can generate the entire 30-page guide or a single page. The Trumatch System maps the four-color process gamut in CMYK color combinations. 2MB min. memory. \$98. Trumatch, 212/351-2360; fax 212/517-2237.

Disk Go

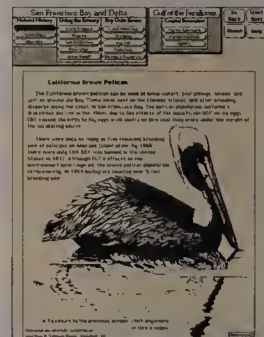
A system extension that is designed to automatically accelerate any attached SCSI hard drive once the extension is installed in the System Folder. The software also displays the SCSI address of the hard drive on the user's desktop and puts the drive mechanism name in the Finder's Get Info box. 1MB min. memory. \$69. SoftWriters, 512/244-3999; fax 512/244-9499.

Expanded Book Toolkit

A software package that lets users create an electronic version of a book from a word processing or page-layout file; the book has the same features found in Voyager's Expanded Books. The software's options let users create annotations, indexes, tables of contents, and cross-references; it also has highlighting and page-marking capabilities, as well as wide margins and a notebook for reader comments. The built-in search feature lets readers look for first, last, and previous occurrences of a word. 2MB min. memory. \$295. The Voyager Company, 310/451-1383; fax 310/394-2156.

Exploring the Estuary

HyperCard 2.0 stack provides information about the ecology of the San Francisco Bay-Delta Estuary and the Farallones Marine Sanctuary just beyond San Francisco's



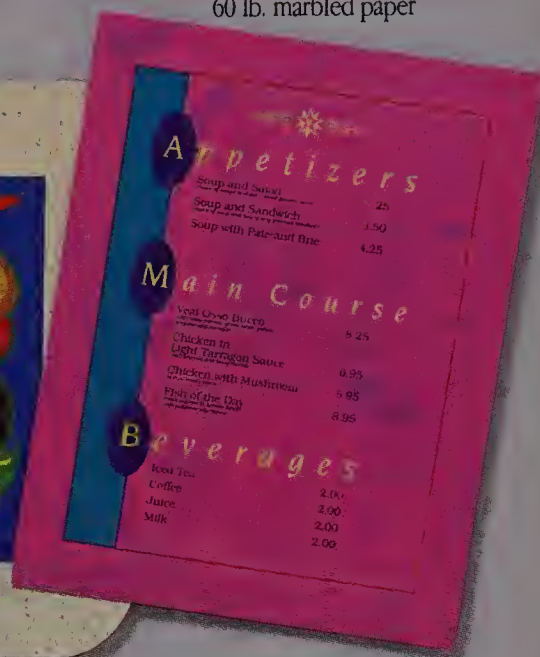
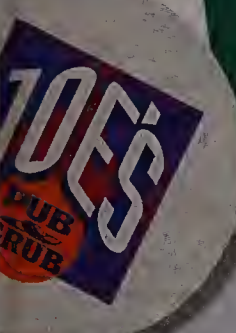
Exploring the Estuary

Golden Gate, and the impact of human activities on these ecosystems. The information is displayed on base maps with text screens and graphics. The sections cover natural history, using the estuary, bay-delta issues, and coastal resources. 2MB min. memory. \$49. Aquatic Habitat Institute, continues

20 lb. copy paper

60 lb. marbled paper

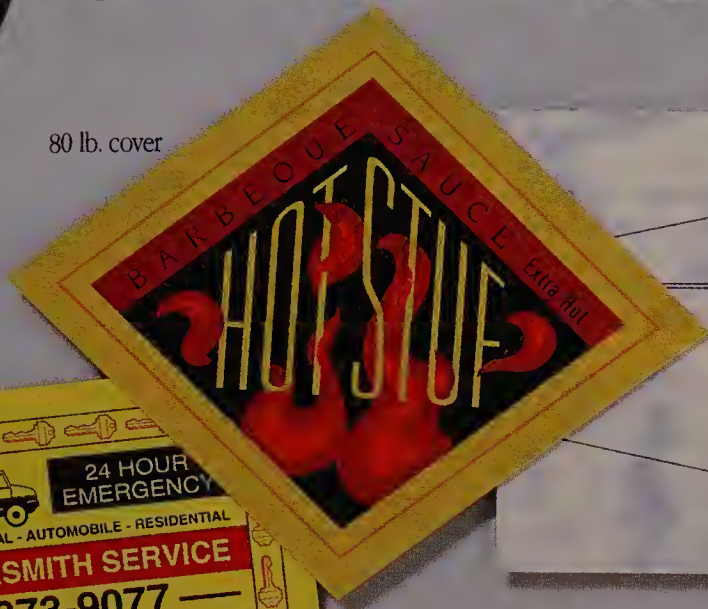
80 lb. text



60 lb. text

It can take any paper you feed it.

80 lb. cover



24 lb. bond

20 lb. yellow pages paper

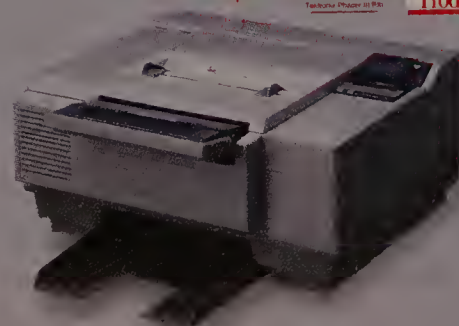
60 lb. marbled vellum

Have you ever wondered what your design would look like printed on a grocery bag? Okay, maybe not. But when you're working with a Phaser™ III color printer, your thoughts do tend to go a little wild.


Because you can feed the Phaser III any kind of paper, from 80 lb. bond to acetate. Even paper towels. It also takes sizes up to 12" x 18" for printing tabloid bleeds. And with 16.7 million colors delivered at 300 dpi, you get gorgeous color on any media.

It's driven by a 24 MHz RISC chip with 10 MB RAM. Fast enough for you? And with Adobe's PostScript™ Language Level 2, your message will come out loud and clear.

The only thing you need is a well-fed imagination. Call 1-800-835-6100 Dept. 21C for your free output sample.



Tektronix

 POSTSCRIPT Software From Adobe Phaser is a trademark of Tektronix, Inc. for color printers and related products. PostScript is a trademark of Adobe Systems Incorporated which is registered in the USA and other countries. Other marks are trademarks or registered trademarks of the manufacturers or marketers of the products with which the marks are associated.

Circle 143 on reader service card

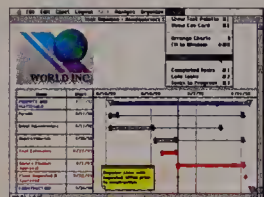
510/231-9539; fax 510/231-9520.

LapTrack

An application that lets users track time and expenses, keep notes on how time was spent, track budgeted versus actual figures, and access client addresses. Each record, called a slip, details who performed the work, the activity, or other expense, and the client for whom it was done. The software is designed to be used on a PowerBook but also works on desktop Macintoshes. 1MB min. memory. \$79.95. Timeslips Corp., 508/768-6100, 800/285-0999; fax 508/768-7660.

MacProject Pro

Project-management software that lets users create project schedules using an integrated outlining module, manage resources and budgets for multiple projects, present plans with customized charts and reports, and share data and graphics. Using System 7's publish and subscribe and Apple events, users can share live data and graphics; 8 common project status reports and 11 project templates are included with software. 2MB min. memory. \$599. Claris Corp., 408/727-8227, 800/544-8554; no fax.



MacProject Pro

MapArt Vol. 1, Update '92

An updated version of MapArt that includes a collection of maps that reflect recently changed boundaries all over the world, including the former Soviet Union, Yugoslavia, and Germany. Half of the original 43 maps have been revised, and 8 new maps, including maps of the newly independent nations of Russia and the Ukraine, have been added. The maps are available in EPS and PICT formats. 2MB min. memory. \$179. MicroMaps Software, 609/397-1611, 800/334-4291; fax 609/397-5724.

metal

Two collections—general and animals—of PostScript images in EPS format, each with more than 200 black-and-white images. The general collection includes images of plants, tools, food, and transportation; the animal collection features drawings of a variety of animals including dinosaurs. Clip art. 1MB min. memory. \$79 each. metal Studio, 713/932-6088; fax 713/932-6087.



metal

Nok Nok A/S

A security and accounting product for use with AppleShare servers that can keep a detailed log of server connections, disconnect idle users, reveal names of guest users, and alert administrators when log-ons occur. The program logs server activity, including the duration of log-ons, machine names, and originating log-on zones, and network and node addresses for registered users. 2MB min. memory. \$295 per server. Trik, 617/933-8810, 800/466-8745; fax 617/933-8648.

The Online Bible

An electronic version of the Bible that lets users display Biblical passages in any number of windows; search words, phrases, and wild cards; perform Boolean searches; and add notes. The text of the Bible is taken from the 1769 King James Version and is indexed to about 350,000 Greek and Hebrew words using Strong's numbers. The program can store cross-references for automatic recall, and a lexicon provides definitions of all Biblical Greek and Hebrew words. 1MB min. memory. \$30. Ken Hamel, 908/542-2533; fax 908/542-8386.

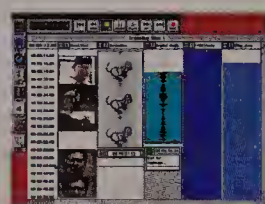
PowerPalettes

Software that contains a set of six color palettes for use in HyperCard that

enhance specific HyperCard functions. The Properties palette aids in screen design and selection of field and button properties; this palette also has moving, alignment, and spacing tools. The Pictures palette lets users open PICT images from any stack and modify their style, magnification, and location. The other four palettes are Messages, Sorter, Replacer, and Caser. 2MB min. memory. \$89. Cheshire Grin Productions, 416/896-8077, 800/668-3873; fax 416/896-0281.

Passport Producer

Software that functions as a media integrator for combining animation, digital video, MIDI files, music, and presentation graphics into multimedia presentations. Producer acts as a control center for multimedia production tools, and has the ability to link to popular authoring and editing software and import standard multimedia file types. The program's visual cue sheet works as a time line for integrating elements, and Producer uses SMPTE time code for accurate frame alignment. 8MB memory recommended. \$395. Passport Designs, 415/726-0280; fax 415/726-2254.



Passport Producer

Real Estate Connections

A package based on Danny Goodman's Connections, a personal-information manager from Centrix Technology, that has features and databases designed for use by real estate salespeople. The program helps users manage appointments and reminders, as well as contact information; they can also create form letters and keep track of information on prospects, properties, listings, and mortgages. Runs only on Macintosh Classic II, LC and LC II, PowerBooks 140 and 170, and Quadras. 2MB min. memory. \$395. RealData, 203/838-2670,

800/899-6060; fax 203/852-9083.

Special Delivery

A multimedia integration and delivery tool that enables users to create interactive presentations using existing graphics, pictures, movies, and sounds. The program imports a variety of standard file formats and allows users to assemble the elements on interactive slides. 4MB min. memory. \$399. Interactive Media Corp., 415/948-0745; no fax.



Special Delivery

Stingers

A compilation of 98 professionally recorded and edited music clips designed for multimedia developers. Each music segment is from 2 seconds to 2 minutes long and is stored in 9 different formats, including 44.1kHz CD-audio, 22kHz AIFF, and 22kHz SND. The sounds span a variety of musical styles such as corporate, classical, industrial, and contemporary. System 7-dependent. 4MB min. memory. \$99. The Music Bank, 408/867-4756; fax 408/867-0518.

VideoMaker+

Software for use with the company's NuVista+ video board that is designed to create video productions and multimedia presentations; offers broadcast-quality special effects, wipes, blends, and blue-matte keying. The product is also compatible with QuickTime and lets users combine live video with QuickTime movies or animations. VideoMaker+ supports NuVista+ key effects, including digital chrome keying and digital linear keying. 4MB min. memory. \$295. Truevision, 317/841-0332, 800/344-8783; fax 317/576-7700.

CD ROMS

Expo CD

An interactive multimedia reference guide to the 1992 Macworld Expo in

Boston containing exhibitor information, a summary of conferences, product information, and application demos. The CD incorporates text, color graphics, sound, animation, and QuickTime movies. 8MB min. memory. Free to registered attendees; \$9.95 for others. Greg Brown Associates, 714/673-4301, 800/395-3976; fax 714/673-7127.

The Family Doctor

A family medical guide that runs in HyperCard and is based on the work of Dr. Allan Bruckheim; the CD has a section that shows an illustrated guide to human anatomy, and while viewing the illustrations users can call up recorded pronunciations of 250 body systems and parts. The guide's question-and-answer section offers advice on nearly 2000 commonly asked health questions. The product also contains almost 300 color illustrations, a glossary of more than 100 medical terms, and data on more than 1600 prescription drugs. 2MB min. memory. \$79.99. Creative Multimedia Corp., 503/241-4351, 800/776-9277; fax 503/452-5930.

The World of U.S. Manga Corps

A collection of over 100 QuickTime movies and 1000 24-bit color images of Japanese animation (or Japanimation). Movies included are Project A-ko, The Crystal Triangle, and MD Geist. The CD has a demo version of Adobe Photoshop and a multimedia application that lets users view a selection of thumbnail sketches of the images on the CD with a short description of each file. 4MB min. memory. \$49.95. Central Park Media, 212/977-7456, 800/833-7456; fax 212/977-8709.

ACCESSORIES

Custom Laser Greetings Card Kit—Holiday Edition

A package that contains templates for making custom greeting cards, Avery's label-production software MacLabelPro, and two sheets of clear laser labels; it also includes

15 different predesigned, scored, laser printer-compatible Christmas and Hanukkah cards with matching envelopes and Desktop ColorFoil transfer sheets for adding color using a laser printer. \$65.95. PaperDirect and Avery Division, 201/507-5488, 800/272-7377; fax 201/507-0817.

Mouslounge

A keyboard-mounted side tray for holding a mouse or other input device; clamps onto the edge of most keyboards. The Mouslounge has a low rail around its perimeter to keep the input device on the tray, which can be affixed to the left or right side of the keyboard. \$21.95. Armchair General, 208/733-7538; fax 208/733-7538.



Mouslounge

Traveler

A portable voltage-surge-suppression unit that has a 6-foot detachable power cord and three off-set receptacles to accommodate devices with bulky power cords. The Traveler is rated at 1600 joules, has phone and modem protection, and has power-line diagnostics that indicate surge-suppression status and wiring integrity. \$149.95. DSK, 801/224-4828; fax 801/224-5872.

BOOKS

The Color Mac: Design & Production Techniques

Coaches users in page-layout skills. Presents concepts such as resolution, scanning, color themes, and digital storage. Covers the steps of image creation and editing, as well as the basics of four-color process separations and video output. Includes matching color chart, software and hardware charts, a production chart, a glossary of terms, and examples. By Marc Miller and Randy Zaucha. \$39.95. Hayden, 317/573-2500, 800/428-continues

BUY OUR NEW GRAYSCALE SCANNER, AND GET A COLOR SCANNER FREE*



* Well, more or less.

Introducing the ScanMaker II. Microtek's next generation color scanner that's priced like a grayscale scanner. For about the same price as the Hewlett-Packard ScanJet IIp, one of today's most popular grayscale models, the ScanMaker II brings a new level of affordability to color scanning. Thanks to an all new electronic design, the ScanMaker II offers greatly enhanced features, higher reliability, and unbelievable ease of use. And it's faster than any scanner we've ever built.

For more information or the name of your nearest authorized Microtek dealer, call 1-800-654-4160.

After all, just because you're paying grayscale prices doesn't mean you have to settle for grayscale limitations.

Microtek Lab, Inc., 680 Knox Street, Torrance, CA 90502 © 1992 Microtek Lab, Inc. All rights reserved. All trademarks or registered trademarks are the property of their respective holders.

MICROTEK
Better Images Through Innovation.

Circle 146 on reader service card

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION REQUIRED BY 39 U.S.C. 3685

1. Macworld Pub. No. 07418647
2. Date of filing: October 1, 1992
3. Published monthly
- 3A. No. of issues published annually: 12
- 3B. Annual subscription price: \$30.00
4. Known office of publication: 501 Second St., San Francisco, CA 94107
5. Complete mailing address of the headquarters of general business offices of the publisher: MACWORLD, 501 Second St., San Francisco, CA 94107
6. The names and address of the publisher, editor, and managing editor are Publisher: James E. Martin, MACWORLD, 501 Second St., San Francisco, CA 94107; Editor: Adrian Mello, MACWORLD, 501 Second St., San Francisco, CA 94107; Managing Editor: Charles Barrett, MACWORLD, 501 Second St., San Francisco, CA 94107
7. The owner is: IDG COMMUNICATIONS, INC., Patrick McGovern, 5 Speen St., Framingham, MA 01701. The names and addresses of stockholders owning or holding 1% or more of the total amount of stock are listed below.
None
8. There are no known bondholders, mortgagees, or other security holders owning or holding 1% or more of the total amount of bonds, mortgages, or other securities.
10. Extent and nature of circulation:
Average no. copies each issue during preceding 12 months: A. Total no. copies (net press run), 594,309; B. Paid and/or requested circulation: 1. Sales through dealers and carriers, street vendors and counter sales, 79,291; 2. Mail subscription (paid and/or requested), 385,170; C. Total paid and/or requested circulation (sum of 10B1 and 10B2), 464,461; D. Free distribution by mail carrier or other means, samples, complimentary, and other free copies, 42,043; E. Total distribution (sum of C and D), 506,504; F. Copies not distributed
1. Office use, left over, unaccounted for, spoiled after printing 2,489; 2. Return from news agents, 85,306; G. Total (sum of E, F1, and F2 should equal net press run shown in A) 594,309.

Actual no. copies of single issue published nearest to filing date: A. Total no. copies (net press run), 626,000; B. Paid and/or requested circulation: 1. Sales through dealers and carriers, street vendors and counter sales, 73,271; 2. Mail subscription (paid and/or requested), 402,968; C. Total paid and/or requested circulation (sum of 10B1 and 10B2), 476,239; D. Free distribution by mail, carrier or other means, samples, complimentary, and other free copies, 41,772; E. Total distribution (sum of C and D), 518,011; F. Copies not distributed: 1. Office use, left over, unaccounted for, spoiled after printing, 2,500; 2. Return from news agents, 105,489; G. Total (sum of E, F1, and F2 should equal net press run shown in A) 626,000.

11. I certify that the statements made by me above are correct and complete. Adrian Mello, Editor.

5331; fax 317/573-2583, 800/448-3804.

Cool Mac Animation

Introduces reader to desktop animation, video, and multimedia on the Mac. Provides overview of the art of animation, QuickTime, introductions to related software, and tips on how to avoid or solve problems. Includes disk filled with software and run-time programs, samples of Mac animations and movies, and artwork for use in creating custom animations. Written by Clint Hicks. 2MB min. memory. \$19.95. Hayden, 317/573-2500, 800/428-5331; fax 317/573-2583, 800/448-3804.

Cool Mac Sounds

A guide to recording, editing, and playing different types of sounds on the Macintosh; the book also teaches users how to control a sound system with the Mac Sound Manager and how to use the Sound Mover and Sound Wave applications. A disk with more than 36 sound effects is included; Sound Mover and Sound Extractor, sound-control shareware programs, are also on the disk. 4MB min. memory. Written by Craig O'Donnell. \$19.95. Hayden Books, 317/573-2500, 800/428-5331; fax 317/573-2583.

Desktop Marketing with the Macintosh

Guides readers through the steps of creating a direct-marketing campaign using the Macintosh and a range of software programs and tools. The book outlines seven steps for effective desktop marketing, according to authors. Explains how to use Mac for both business-to-business and business-to-household marketing. By Tracy Emerick and Stacy Gasteiger. \$34.95. Brady, 317/573-2500, 800/428-5331; fax 317/573-2583, 800/448-3804.

Everything You Wanted to Know About the Mac

This book discusses the genesis and development of the Macintosh, describes what's inside the machine, and gives tips and tricks for using applications. Chapters

are devoted to topics such as viruses, fonts and typography, word processing, desktop publishing, databases, spreadsheets, and games. By Hayden Development Group, edited by Larry Hanson. \$29.95. Hayden, 317/573-2500, 800/428-5331; fax 317/573-2583, 800/448-3804.

The Mac Shareware 500

A shareware catalog that also contains a collection of tips and tricks for obtaining and working with shareware, a guide to the best programs, and a shareware troubleshooting manual. Section I introduces users to shareware and discusses the ethics of the shareware community. Section II features individual chapters on different categories of



The Mac Shareware 500

shareware. A three-disk set containing dozens of shareware programs is included. Written by Ruffin Prevost and Rob Terrell. 2MB min. memory. \$39.95. Ventana Press, 919/942-0220; fax 919/942-1140.

Plain English Computer Dictionary

Defines computer terms using everyday examples and comparisons, pictures, and cartoons. Written in a light style, according to publisher, for those with little or no computer knowledge. Written by Joel Kraynak. \$10.95. Alpha Books, 317/573-2500, 800/428-5331; fax 317/573-2583, 800/448-3804.

Prides' Guide to Educational Software

A guide that lists and rates over 750 products designed for the education market, including more than 100 CD ROMs and videodiscs. The book describes products for ages from preschool to adult

and also makes hardware recommendations. In addition, it contains a history of educational software, an introduction to multimedia, and five computer-term glossaries. Each vendor is listed with address, phone number, and fax number. Written by Bill and Mary Pride. \$25. Published by Crossway Books, 708/682-4300; fax 708/682-4785.

Programmer's Guide to MPW, Volume II

A companion to Volume I that examines the tools and programming languages designed to be used with MPW and discusses object-oriented tools and techniques. Tools that are described in depth include the MPW Pascal and C compilers, the MPW assembler, and the SADE and MacsBug debuggers. Written by Mark Andrews and Neil Rhodes. \$32.95. Addison-Wesley Publishing, 617/944-3700, 800/447-2226; fax 617/944-8243.

Your Mac Can Do That

With tips, techniques, and ideas to increase understanding of the Macintosh and its capabilities, this book details the basics of System 6 and 7, including cut and paste, publish and subscribe, and aliases. Gives instructions on installing and using system add-ons such as Baseline's Talking Moose, CE Software's QuickKeys, Now Software's Now Up-to-Date, and Portfolio Systems' Dynodex. By Christian Boyce. \$24.95. Hayden, 317/573-2500, 800/428-5331; fax 317/573-2583, 800/448-3804. **m**

To have your product considered for inclusion in *New Products*, send an announcement with product name, description, minimum memory, peripherals required, pricing, company name, and phone number to New Products Editor, *Macworld*, 501 Second St., San Francisco, CA 94107. *Macworld* reserves the right to edit all product announcements.

Questions and Tips from Macworld Readers

BY LON POOLE

YOU CAN PROBABLY IMAGINE times when hearing Darth Vader say, "What is thy bidding, master?" while your Mac starts up would not be politically correct. You can suppress the playing of sounds and the opening of all other items in System 7's Startup Items folder by pressing the shift key when the Finder's menu bar appears, as mentioned in a tip last August. Once the opening of start-up items has begun you can cancel it by pressing ⌘-period, notes Clint Beilman of Kissimmee, Florida. The Mac immediately stops any sound it was playing and skips all start-up items it has not already opened. If you press ⌘-period while the Mac is opening an application, document, or desk accessory from the Startup Items folder, the Mac finishes opening that item and ignores all other start-up items. Pressing ⌘-period also stops any sound you started playing by opening its icon in the Finder. If your Mac disturbs other people by beeping when you start it or restart it, you can quiet it by plugging headphones or an earphone into the speaker jack.

Electrical Update

THE TABLE "POWER NEEDS" IN APRIL'S *Quick Tips*, which lists the electrical requirements of most Apple Macintosh-related products, contains a couple of errors. The table correctly includes the Mac IIx in the group of products that need no isolation step-down transformer for 220/240 volts, but lists the wrong voltage range; the correct range for the IIx is 100V-240V AC. Örjan Larsson of Karskoga, Sweden, spotted a more serious error: Apple's 12-inch color monitor, which was discontinued in October, does require an isolation step-down transformer for 220V/240V power. The table lists the monitor in the wrong section, though it does correctly state the monitor's power range, 100V-120V. Before plugging in any electrical equipment outside the country where it was originally sold, double-check the nameplate or owner's manual and make sure the local electric-

ity falls within the equipment's voltage and frequency ranges.

Simplified Registration

AUGUST'S METHOD OF CREATING REGISTRATION and crop marks in Aldus Free-Hand requires more work than necessary when making a process-color separation, writes Kathy Doogan of Anchorage, Alaska. She says you needn't go to the trouble of duplicating the registration or crop mark, assigning each duplicate one of the four process colors, then aligning all four. Instead, create a new color made of 100 percent black, 100 percent cyan, 100 percent magenta, and 100 percent yellow. Apply this new color to a single registration mark, and the mark will appear—perfectly aligned—on each separation.

Merging in Mariah

IF YOU USE MARIAH FROM SYMMETRY Software (602/998-9106) to organize multimedia databases and want to combine several of them, *Macworld* associate editor Dan Littman suggests you use the New From Gather command, select the databases (Collections) you want to combine, and type **all** in the keyword field. If you don't know this trick (and Symmetry tech support says it's not documented), you'll try using specific keywords from your collections. Since you can search for only three keywords at a time, and since most images have more than one keyword, you'll spend hours importing over and over, only to end up with multiple copies of many of the images.

Stack and Heap Collisions

Q I have one problem with my Mac Classic. Every time I quit a program I get a system error message that reads "Stack collision with heap." I have to restart the computer before starting another program. What can I do to fix my wonderful machine?

Curt D. Baker
Address unknown

A. The heap and stack are two parts of the memory partition that System 7 (or System 5 or System 6 with MultiFinder active) allocates to a program. The heap stores the program instructions and the definitions of windows, menus, dialog boxes, and other program resources, while the stack stores program variables and parameters. The heap and the stack start at opposite ends of the program's memory partition with some amount of available memory between them. As you use the program, the stack and the heap grow toward each other. The Macintosh system software keeps the heap from overrunning the stack but cannot prevent the stack from clobbering the heap. That's because the stack is controlled independently by the central processor, which enlarges and shrinks the stack according to the needs of each program instruction. However, the system software does monitor the respective sizes of the stack and heap. Every 1/60 of a second the system software checks to see if the stack has overrun the heap, and if it has, the system displays the error message you are seeing. Although 1/60 of a second may seem like no time at all to you, the central processor can execute thousands of instructions in that time. Software engineers must carefully design and test programs to make sure their instructions don't cause the stack to overflow into the heap.

The immediate solution to your problem is to increase the program's memory size—before opening or after quitting the program—in its Info window, which you access by selecting the program's icon and choosing Get Info from the Finder's File menu. Increasing the memory size by 50K might be enough; if not, try 100K or 150K. In the long term, your trouble may be cured by upgrading the program to a more recent version. Because no well-written pro-

continues



MS-DOS
printers, tinting
tables in
QuarkXPress,
32-bit
addressing, and
more



Audioshop™ is the hot new software for playing, recording and editing your Macintosh audio. Change Mac System sounds, add audio to HyperCard, record your voice and add special effects so your voice sounds like an alien! Color graphics and powerful editing tools make sound a blast (or an elephant, or any sound).

**FUN
AND
EASY
AUDIO
ON
THE
MAC**

- 2 Free Disks of Sounds -

You get 2 free disks of sound effects and music to start exploring sound right away. Also, you don't need a CD ROM drive to use Audioshop but it's even more fun if you have one.

Songs from your audio CD collection and digitized sounds and can be assembled into a "playlist." Change the order they're played by simply clicking and dragging.



- ▶ Create fun messages for your answering machine
- ▶ Cut and paste sound waves like text in a word processor
- ▶ Edit voice annotations for QuickTime supported applications and E-mail
- ▶ Add soundtracks to your QuickTime movies, and Director presentations
- ▶ Record songs and greetings to send to friends

Audio formats supported include QuickTime, AIFF, HyperCard, Director, and SND. Record audio using the microphone included with your Mac or any compatible input device, a perfect choice for Mac II LC and PowerBook users.

**O P C O D E
S Y S T E M S I N C**

3950 Fabian Way Palo Alto, CA 94306
415-856-3333

Trademarks: Audioshop: Opcode Systems, Inc., Macintosh, HyperCard, QuickTime, Apple Computer, Inc., Director: MacroMedia

gram crashes regularly and predictably, you should definitely report the problem to the program's publisher.

StyleWriter Background Printing

Q. My Mac IIsi is now tied up each time I print on my StyleWriter, sometimes consuming significant time. I need some type of printer buffer. My Apple dealer has no solution to this problem. Can you recommend one?

*Phillip Moultrie
Hoover, Alabama*

A. Apple's current StyleWriter driver software, version 7.2.2, can print in the background with System 7 or with System 6 while MultiFinder is active. As a bonus, version 7.2.2 is much faster than versions 7.1 and earlier. StyleWriter 7.2.2 comes on Apple's System 7 Tune-Up disk (described in last month's *Quick Tips*). At this writing, the latest four-disk set of StyleWriter Installation software includes a slightly older version of the StyleWriter driver, version 7.2. You can get the Tune-Up disk from Apple dealers, user groups, and online information services.

If you use System 7.0 or 7.0.1, you install the StyleWriter driver with the Installer program as part of a complete tune-up. If you use System 6, you can install StyleWriter 7.2.2 by dragging it from the Tune-Up Parts folder on the Tune-Up disk to your System Folder. For background printing with System 6, the System Folder must also contain the MultiFinder, Backgrounder, and PrintMonitor software, which all come on the System 6 installation disks.

To use background printing, open the Chooser, click the StyleWriter icon, and turn on Background Printing. Thereafter, every Print command will automatically spool documents to disk for later automated printing in the background.

If you use System 6 without MultiFinder you can still print in the background on a StyleWriter, ImageWriter, LaserWriter, or another printer. Instead of using Apple's PrintMonitor and Backgrounder software, use SuperLaserSpool from Fifth Generation Systems (800/873-4384 or 504/291-7221). SuperLaserSpool also works with MultiFinder active and with System 7.

Dot Matrix Printing

Q. I have five dot matrix printers, some 9-pin and some 24-pin, made for MS-DOS computers. I would like to use them with Macs and PowerBooks—on an AppleTalk network if possible. The ads for The Grappler from Orange Micro (714/779-2772) state it can convert MS-DOS printers for use with

Macs. Is it merely a question of cabling, drivers, and DIP switches, or is something else involved?

*Richard Cacciato
New York, New York*

A. Both The Grappler from Orange Micro and PowerPrint from GDT Softworks (604/291-9121 or 800/663-6222) let you use a variety of printers having IBM-style parallel interfaces with a Macintosh serial port. I haven't seen PowerPrint in action, but GDT claims the latest version, 2.0, works with over 1000 printers—9-pin, 24-pin, laser, ink-jet, and thermal. This means a PowerBook user on the road can print to almost any handy printer, not just a Macintosh printer.

I have seen two Grappler models demonstrated. Orange Micro claims The Grappler IIsi works with many specific 18- and 24-pin dot matrix printers, ink-jet printers, laser printers, and any printer that's compatible with an Epson LQ or a Hewlett-Packard LaserJet printer. The Grappler II 9Pin reportedly works with many specific 9-pin dot matrix printers and with any printer that's compatible with an IBM ProPrinter or an Epson EX, FX, or JX printer. According to Orange Micro, both Grappler models work with TrueType and Adobe Type Manager for smooth text at any size. They print QuickDraw graphics but not PostScript graphics or PostScript font effects such as rotated text and curved text. These claims and observations apply only to The Grappler IIsi and II 9Pin; older models may work differently.

The PowerPrint works with one Mac at a time, but both Grapplers allow a printer to be shared on a network. The Mac to which the printer is connected acts as a host, spooling print jobs on its hard drive and printing them in the background when it's not busy. Because The Grappler background printing has a very low priority, the host's foreground performance isn't degraded (except on slower Macs like the Plus, SE, and Classic).

To install The Grappler, you plug it into the printer and its cable into your Mac's printer or modem port. You drag a standard ImageWriter LQ driver (a plain ImageWriter driver for The Grappler II 9Pin) and a Grappler control panel (also called a cdev) into the System Folder. The control panel lets you control background printing, and with a IIsi you use the control panel to specify the printer type. With a II 9Pin you specify the printer type by setting switches on The Grappler itself.

To use a printer connected through The Grappler, you open the Chooser, se-

continues

Fairmont Hotel, San Francisco

QuickTime: The Conference

March 1 and 2, 1993



The Second Annual QuickTime™ Conference

An International Film Festival, Multimedia Exhibition, and CD ROM Event

A two-day celebration of QuickTime for Macintosh users, developers, and film/video users, co-sponsored by Apple Computer and Sumeria.

Sessions

In-depth sessions include how to make a QuickTime movie, camera technology, compression technology, making your own CD, utilities, digital video applications, analog editing, digital editing, music, sound, digitizing, animation, 3-D, special effects, interactive games, and authoring.

The QuickTime™ International Film Festival

The QuickTime Film Festival is hosted by Michael Backes, of the American Film Institute's Apple Computer Center for Film and Video Makers. Entries may be submitted by January 15, 1993 in the following categories: Animation, Commercial, Documentary, Education, Experimental, Micro Movie, Narrative Film, Noncommercial, and Other. Contact the Events and Conferences Department for entry forms.

Exhibition

More than 30 exhibits will provide demonstrations of QuickTime applications, monitors, cameras, editing systems, CD ROM development systems, digitizers, and QuickTime-related technology.

Registration

\$495 Includes all sessions, conference materials, and breaks.

Checks should be made payable to Sumeria, Inc.

329 Bryant St., Ste 3D, San Francisco, CA 94107.

For additional information, contact the Events and Conferences Department at 415/904-0808; fax 415/904-0888.

lect the ImageWriter LQ icon (or ImageWriter icon, for a II 9Pin), and select the proper port. Your programs think they are printing to an ImageWriter LQ (or ImageWriter); The Grappler's software and hardware handle the translation to the MS-DOS printer.

Drag, Drop, and Copy

TIP One of Word 5's best features is drag and drop, which allows you to move text with more ease than cut and paste. You can also copy text using this method. Just press the ⌘ key when you begin dragging; the original text doesn't move and Word places a copy of it wherever you drag to. This method also works in Excel 4.

*Michael N. Witman
New Britain, Connecticut*

Living with Unclean Programs

TIP Those of us fortunate enough to have more than 8MB of RAM naturally have 32-bit addressing turned on in System 7's Memory control panel. Otherwise we couldn't use all that memory. Problem: There remain programs (none would be games, mind you) that are not 32-bit clean. They do not work if the Mac puts them in the area of memory above 8MB, which it may do if 32-bit addressing is on.

Here's a workaround: Use the Finder's Get Info command to set a 32-bit-clean program's memory size large enough to occupy all remaining memory above 8MB. To calculate the smallest size that works, subtract 8MB from the size of the largest unused block of memory, which the Finder's About This Macintosh command reports. After setting the memory size and closing the Info window, open the 32-bit-clean program; it consumes all remaining RAM that requires 32-bit cleanliness. Now when you open your 32-bit-not-so-clean program, the Mac puts it in the bottom 8MB of memory, which doesn't require 32-bit cleanliness.

This technique has always worked for me because the Mac allocates memory to applications from the highest memory addresses (which require 32-bit cleanliness) toward the lowest. It's one great way to allocate nearly a full 8MB of RAM to the game Spaceship Warlock, not that I would know personally.

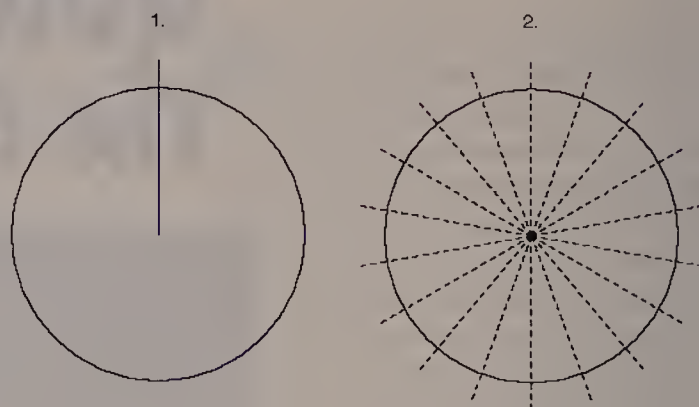
*Dave Curtin
Orange, Connecticut*

The system software always occupies the lowest memory addresses of the bottom 8MB (typically the first 1MB to 4MB), so you never have a full 8MB in which to open programs that aren't 32-bit clean. With 32-bit addressing turned off, the Mac can't

Scallops à la Michelin

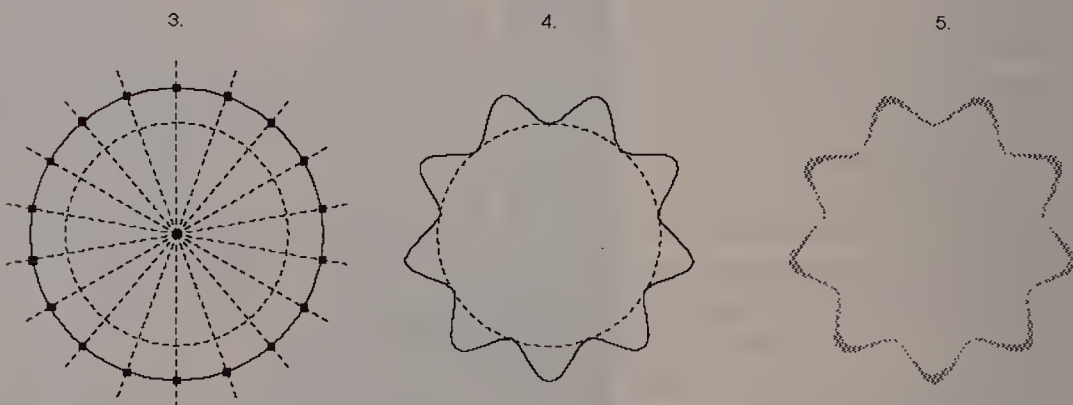
Here's a quick way to make a good scalloped border with Adobe Illustrator, contributed by Carla Michelini of New York.

1. Draw a circle the appropriate size, and draw a radius that extends beyond the circumference of the circle.
2. Make additional radii to see where the scallops will fall, one radius for each "peak" and one for each "valley," and make them guide lines.



Here's how. Select the radius you drew, choose the Rotate tool, press the option key, and click the center of the circle to bring up the Rotate dialog box. In it enter a rotation angle equal to the circle's 360 degrees divided by twice the number of peaks you need, and click the Copy button. Next duplicate more radii by using Illustrator's Transform Again command repeatedly until you have radii equally spaced throughout the circle. Then select all the radii and use the Make Guide command.

3. Decide how deep you wish the valleys to be, then draw a second circle, with the same center point as the outer circle—the edge of the inner circle should be at the low point of the valleys. Now make the inner circle a guide. Then add anchor points along the outer circle where the radial guide lines intersect it. To add anchor points, choose the Add-Anchor-Points tool (from the Scissors tool's pop-up menu), and click with it. Now you have a circle with a number of anchor points around it.



4. To get the scalloped effect, you scale alternate anchor points (the valley points). First choose the Direct Selection tool (from the Selection tool's pop-up menu), hold down the shift key, and click—or drag a selection rectangle around—the anchor points where you want valleys. Then choose the Scale tool, press the option key, and click the center of the circle to bring up the Scale dialog box. In it enter a uniform scaling percentage equal to the diameter of the inner circle divided by the diameter of the outer circle times 100 (or estimate the percentage by eye), and click OK. Depending on the number of peaks and valleys, you may have to delete some or all of the anchor points at 0 degrees, 90 degrees, 180 degrees, or 270 degrees on the circle to get complete regularity.
5. You can combine several scallops to get interesting effects. For example, you can get a varied-width scalloped border by duplicating a scallop, reducing and rotating the duplicate, aligning the duplicate and the original at their centers, filling the original with a color, and filling the duplicate with white.

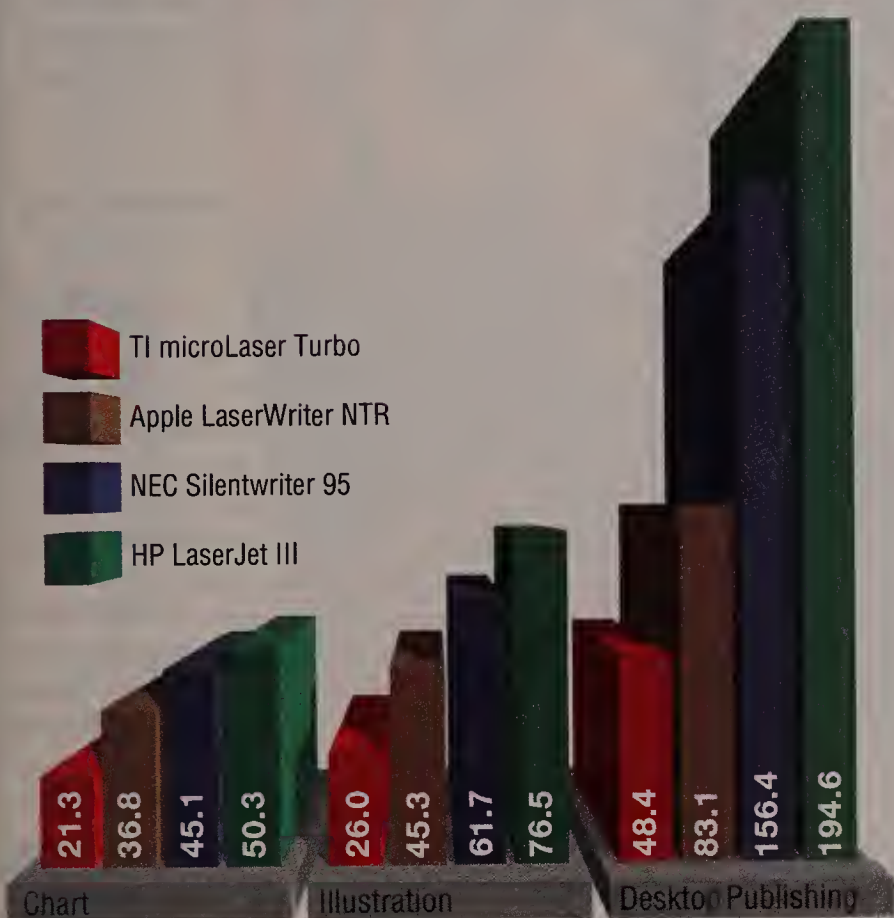
use more than 8MB of RAM, and the About This Macintosh command accounts for all unusable memory (that portion exceeding 8MB) by reporting it as part of the system software memory.

This trick may not work if your Mac's memory has become fragmented. Memory fragmentation can occur when you have opened and quit several programs, but have never quit all programs, since you

last restarted the Mac. If so, there may be a block of memory available in the area of memory requiring 32-bit cleanliness that is smaller than the largest block available but large enough to open the 32-bit unclean program. You can avoid memory fragmentation by quitting all open programs (or restarting the Mac) and reopening the programs. Open the pro-
continues

FASTER FASTER FASTER

LOWER



Total Printing Time In Seconds

It's a fact. Now you can get faster PostScript® printing at a new lower price.

According to benchmark performance tests,* the TI microLaser™ Turbo printer is faster than the Hewlett Packard LaserJet® III, NEC 95 and Apple® NTR when it comes to charts, illustrations and desktop publishing. That's because it sports two processors — standard and RISC — for turbo-charged speed.


But when it comes to high performance, consider what else the Turbo has to offer:



Your choice of PC or PC/Macintosh® configuration. HP LaserJet II emulation and Adobe® PostScript Level 2 software with 35 of the most popular outline fonts to dress up your documents. Automatic switching between HP and PostScript modes so you can print and go — no set-up, no problem. And the ability to connect simultaneously to more than one computer, Windows™-based or Mac, and print with ease.

Best of all, with its new lower price of \$1,749** for the PC model and only \$50

more for PC and Mac compatibility, the microLaser Turbo is selling fast, too. Call right now for more information on the Turbo or other microLaser printer models. **1-800-527-3500.**

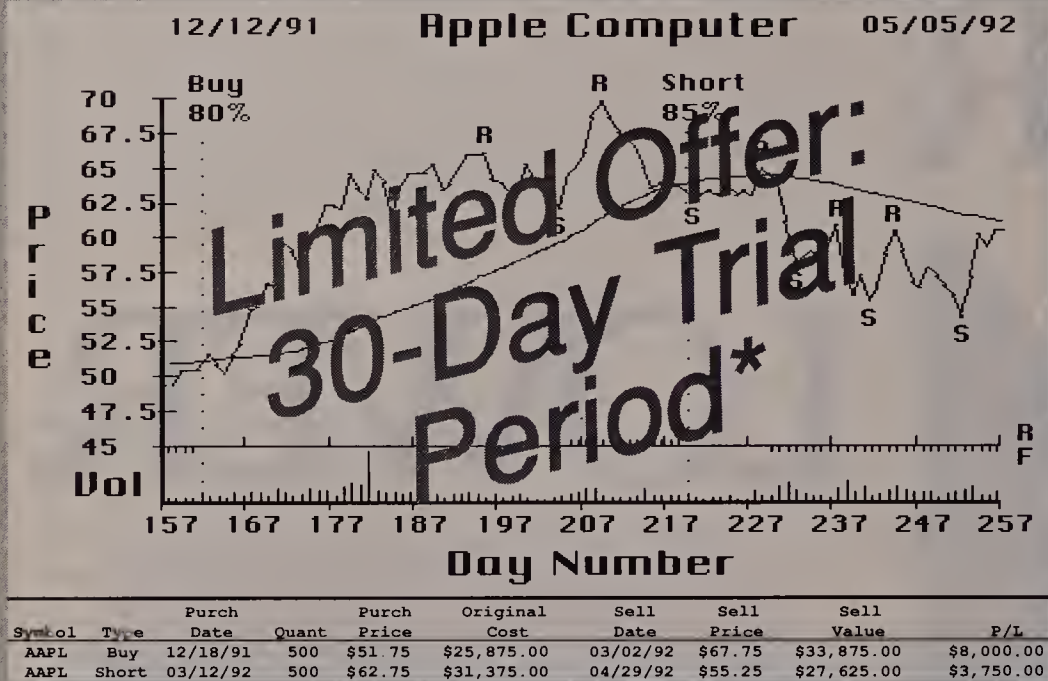
 **TEXAS
INSTRUMENTS**



*Call TI for a copy of Genoa Technology's benchmark test results and specifications of models tested.

**Manufacturer's suggested retail price — dealer prices may vary. microLaser is a trademark of Texas Instruments Incorporated. Adobe, PostScript and the PostScript Logo are trademarks of Adobe Systems, Incorporated, which may be registered in certain jurisdictions. Apple and Macintosh are registered trademarks of Apple Computer, Inc. Windows is a trademark of Microsoft Corporation. The microLaser printer family has earned MacWorld's 1992 Editor's Choice Award and the microLaser Turbo has earned MacUser's 1992 Four Mice award. Reprinted from MacUser, September 1992. ©1992 Ziff Communications Company.

\$11,750.00 PROFIT IN 5 MONTHS **TRADING APPLE COMPUTER STOCK** **WITH OUR STOCK PROGRAM**



COMPUTERIZED TRADING FOR THE REST OF US.

If you had purchased our **Right Time - Stock Program** in December, 1991, followed just the signals for Apple Computer, the rules in the manual and used a little common sense, your profits within the five month period shown above could have been \$11,750.00. Remember, this is a remarkable amount considering the fact that the software cost only \$599.00.

Our **Right Time** software is the best decision support system ever devised for traders. It's the only software that analyzes volume/price, support/demand, and global market trends all at the same time, and can give you profits like those shown here.

AMAZINGLY PRECISE.

The **Right Time™** programs run on IBM (and compatible), Apple II and Macintosh computers. The software is easy to use, amazingly precise, and very, clear in its signals.

You can retrieve and update signals for your stocks, commodities, indices or funds from Dow Jones, Warner, Signal, DBC, Bonneville or the Radio Exchange in less than 5 minutes per day. What's more, you can play "What If" games and have results in less than a second.

RESULTS: WINNING TRADES.

There are nine **Right Time™** programs available to help you make the right decisions at the right time.

- Stock Program or Stock Program/Long Term
- Index Program or Index Program/LT
- Futures Program
- Mutual Funds Program
- Day Trading Program/Index, Futures or Stock

FOR MORE INFORMATION OR TO PLACE AN ORDER.

Call (714) 721-8603 or write today for our free twenty-four page brochure or to place your order. Each of our end-of-day programs costs \$599 (combination prices are available) plus shipping and handling (S&H).

We also have demonstration programs for just \$59 (each) plus S&H. Each demo includes our complete manual.

Our **Right Time-Day Trading Programs** (Index, Futures or Stock) are priced at \$999 each.

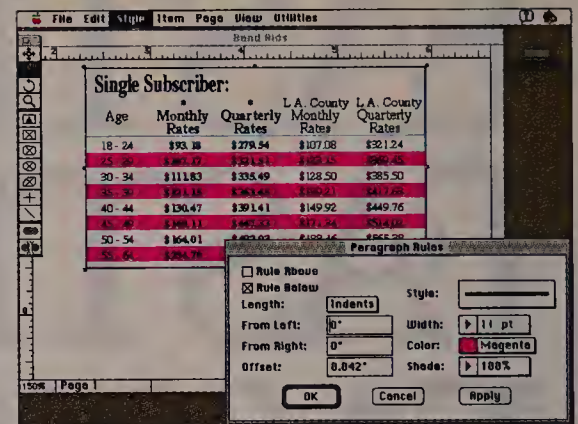
T.B.S.P. INC.
The Better Software People
610 Newport Center Dr., Suite 1120
Newport Beach, CA 92660
(714) 721-8603 Fax: (714) 721-8635

Future results may vary.

*Subject to restocking fee-See license for agreement

All programs not available on all computers.

Circle 25 on reader service card



Band Aids Tinted bands aid in reading a table. These were created with the QuarkXPress Rules command, by setting its dialog box options as shown (the width is the same as the type's leading). To have QuarkXPress print the magenta bands on a separate plate that the printshop can drop in as a screen, select the Print command's Make Separations option.

gram whose memory size you are adjusting next to last, and open the 32-bit-dirty program last.—L.P.

Table Tinting

TIP You can make tables more interesting and easier to read by tinting alternate rows. In QuarkXPress use the Rules command to place a rule under every other line, making each rule the same thickness as the line's leading. To center the rule, you may have to offset it slightly up or down. Then color the rule a shade of gray or a light color so that you can read the type underneath it (see "Band Aids"). The advantage of using this method, compared with drawing tinted lines or rectangles, is that the rules move with the text when you change the text's position, leading, type size, and so on. I assign a style to the bars (actually to the ruled text) and keep it in my style sheet so that I can change the leading and color the bars universally. The first line of the table, and every odd line after, has a style I named "line," and even lines have a style I named "copy."

Kevin Hughes
Fountain Valley, California

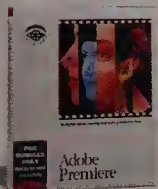
We pay from \$25 to \$100 for tips published here. Send questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to *Quick Tips*, Lon Poole, at the addresses listed in *How to Contact Macworld* at the front of the magazine (include your address and phone number). All published submissions become the property of *Macworld*. Due to the high volume of mail received, we're unable to provide personal responses. **m**

LON POOLE answers readers' questions and selects their tips for this monthly column. His two most recent books are *Amazing Mac Facts* (Microsoft Press, 1991), a collection of the best published tips; and *Macworld Guide to System 7* (IDG Books Worldwide, 1991).

MoviePak
presents **THE
EDITING
ACES**



With MoviePak,
the sky's the limit.
It works with all
RasterOps multi-
media display
adapters to give
you full-motion
digital video
recording, and
full-screen
playback and
print-to-tape
capabilities,
all in a single-
slot solution
for any size
Macintosh®.



MoviePak flies
with all Quick-
Time editing soft-
ware including
Adobe Premiere™,
*yours free with
MoviePak—only
until 11/30/92.
A \$695 value.*



Apple®
got
Quick-
Time off

the ground using
RasterOps® products.
So it's no surprise that
we have the most
complete interface for
it. MoviePak supports
all QuickTime capture
software and saves
videos formatted for use
in any of its applications.

Featuring

**Full motion
Full screen**

**NOW SHOWING IN 24-BIT TRUE COLOR
ALL WITH 16-BIT, CD QUALITY SOUND (with MediaTime)**
Only by RasterOps

CALL FOR YOUR FREE
1-800-SAY-COLOR
MOVIEPAK POSTER

To get in
on the action or
to order your free 13"x 24"
Editing Aces poster, call RasterOps
at 1.800.SAY.COLOR.

RASTEROPS®

THE ART & SCIENCE OF COLOR™

2500 WALSH AVE., SANTA CLARA, CA 95051 FAX: 408.562.4065

© 1992 RasterOps Corporation. Adobe Premiere is a trademark of Adobe Systems Incorporated which may be registered in certain jurisdictions. Adobe Premiere front panel is the copyrighted trade dress of Adobe Systems Incorporated. © 1992 Adobe Systems Incorporated. All rights reserved. All other brand and product names are trademarks or registered trademarks of their respective holders.

SOME FEAR IT. ALL RESPECT IT.



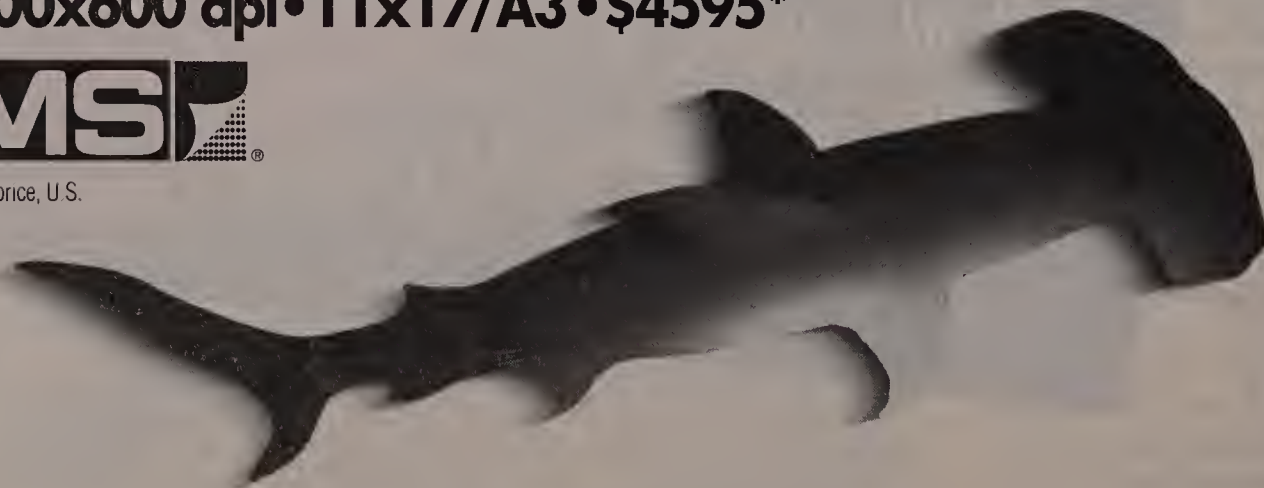
WE BUILD IT.
HAMMERHEAD
THE PERFECT PRINTING MACHINE.

QMS has just released a serious predator into the sea of ordinary printers. The QMS® 860 Hammerhead printer is the first to feed on a Canon® LBP®- BX engine to give you true 600x600 dpi output in up to 11x17/A3 format. Its 25MHz RISC processor and optional EtherTalk®, NetWare®, or a host of other network support make it sleek, fast, and capable. It has everything you've asked for in a desktop printer—high resolution, PostScript™ Level 1 and 2 compatibility, HP PCL® and HP-GL® emulation, and up to 11x17/A3 output. It's fast, compact, compatible with all major platforms, and so affordable that it's causing a frenzy among the competition. The QMS 860 Hammerhead™ is the perfect printing machine. Get it. Call **1 800 392-7559** or **(205) 639-4400** for your nearest QMS dealer.

True 600x600 dpi • 11x17/A3 • \$4595*



* Suggested retail price, U.S.



QMS, the QMS logo, and Hammerhead are trademarks or registered trademarks of QMS, Inc. PostScript is a trademark of Adobe Systems Incorporated which may be registered in certain jurisdictions. All other product and company names are trademarks or registered trademarks of their respective companies.

Circle 191 on reader service card

Downloading Freeware and Shareware

BY JIM HEID

YOUR MACINTOSH IS BUT A phone call away from a vast library of free and inexpensive software. All you need to tap into the world of *freeware* and *shareware* is a setup consisting of a telephone modem, a communications-software package, and a subscription to an online information service.

What kind of software is out there? You name it. Utilities that check your system for viruses and others that compress files to save disk space. Fonts, programs that modify fonts, and programs that print font samples. Programs that display a digital clock in your menu bar, that synchronize your Mac's clock with the government's atomic clock, and that let your Mac speak the time when you press a key.

You have a PowerBook? You'll find utilities that help you locate the pointer on a dim screen, that automatically dim the display after a few minutes to save battery power, and that let you put the hard drive to sleep with a single keystroke.

You want fun? How about a program that lets the Mac play different sounds when you insert or eject disks, empty the Trash Can, and perform other activities? And sounds themselves—you will find clips from "Star Trek," *Terminator II*, "Twin Peaks," "Ren and Stimpy," "The Simpsons," George Bush, and other cartoon characters—more sounds than you have disk space for. And that goes double for QuickTime movies.

There's also plenty for the serious-minded—for instance, a full-featured spreadsheet program as well as spreadsheet templates for loan amortization, investment analysis, and more. HyperCard buffs will find stacks galore, from one that tracks your videotape collection to a mixology stack of 137 drink recipes.

The shareware system illustrates the generosity and sense of community you'll find online. You can *download* a shareware program from an online service and try it out for a week or two. If you find it useful, send a check to the author. In return, you often get a printed manual (most shareware programs come with on-screen

documentation) and a disk with the latest version of the program. Payment usually ranges from \$5 to \$50, although some programmers prefer other forms of remuneration. One programmer asks for a postcard from your home town; another requests a donation to UNICEF; another wants \$25 or a case of beer; still another requests Grateful Dead concert tapes.

Freeware doesn't cost a cent (aside from the cost of the phone call and the information service's connect-time charge—two charges that almost always apply when you're online). But don't get the idea that a free program isn't worth anything. The best virus-detection utility (Disinfectant) is free, as is a popular utility (Extension Manager) for managing System 7 extensions—those files that load into memory during start-up, displaying their icons along the bottom of the screen. Freeware programmers are often inspired by fellow subscribers—on Friday, someone might ask if a certain kind of program is available; by Monday, it often is.

Downloading software from an information service is fairly easy, although there are a few technical hurdles that can trip up novices. This month, I'll describe the key technicalities behind downloading and show how to download from two services: CompuServe and America Online. If you don't have a modem, see "How to Buy a Modem," *Macworld*, August 1992, for details on what to look for.

About the Services

WITH OVER 500,000 SUBSCRIBERS, CompuServe is the largest information service. You can access it with general-purpose communications programs such as Hayes's Smartcom II, Software Ventures' MicroPhone II, and The FreeSoft Company's White Knight. I'm partial to Smartcom II; it's straightforward and powerful. Real communications fiends may prefer MicroPhone II or the legendary White Knight, whose folksy look-and-feel reveals its shareware origins.

Both programs provide more communications features and more-sophisticated *scripting languages*, which let you automate communications.

Seen through any of these programs, CompuServe looks like a relic from a user-interface museum. Instead of using pull-down menus, icons, and the like, you type commands in response to text menus. It isn't easy, but it is efficient—you can navigate the system quickly once you get the hang of its menus.

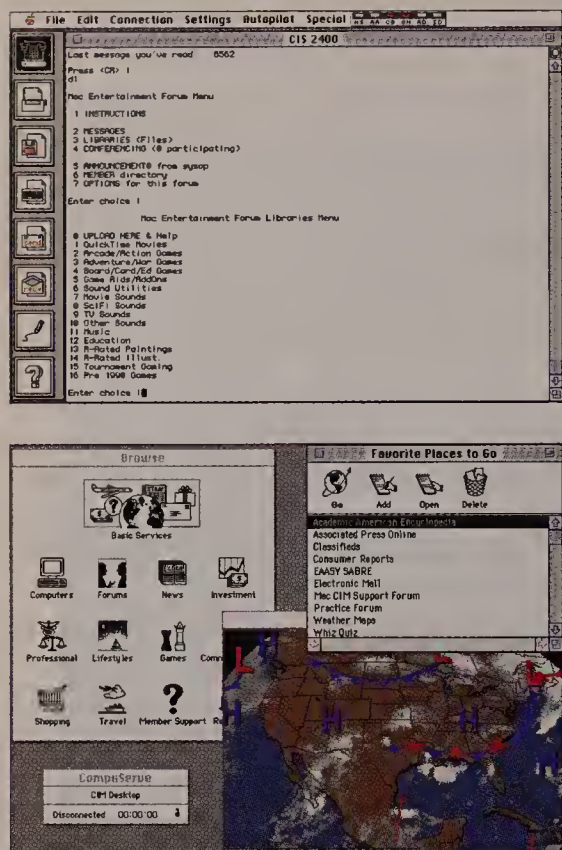
An easier way to access CompuServe is to use CompuServe Information Manager (CIM), a program that puts an icon-based graphical user interface (GUI) between you and CompuServe's mainframe computers (see "CompuServe Two Ways"). When you click on CIM's icons and choose commands from its menus, the program transmits the text commands CompuServe expects.

CIM works reasonably well, but its friendly interface isn't as smooth and polished as America Online's. This relative newcomer to the online scene has about 180,000 subscribers and relies on its own, strictly graphical communications software, which you can receive gratis by calling 800/827-6364, extension 5547. America Online lacks many of the specialized services available on CompuServe, but by and large, America Online is just as good a source for software. Good software travels quickly in the online world; a hot program that debuts on one service is usually quickly *uploaded* to other services.

Both CompuServe and America Online offer many services apart from their software libraries: wire-service news, electronic mail, encyclopedias, and hobby forums for everything from tropical fish to ham radio. In addition, America Online offers an electronic link to *Macworld*—the Macworld Online forum, where you can read news and reviews from back issues and correspond with *Macworld* editors.



*How to
expand your
software
library—over
the phone*



CompuServe Two Ways Top: CompuServe as it appears through Hayes's Smartcom II. Bottom: CompuServe as seen through the CompuServe Information Manager program. National and regional weather maps and forecasts are available on many online services. (To display maps with CIM, double-click on the Weather Maps entry in the Favorite Places to Go window.)

tors, contributors, and fellow subscribers. If you sign on, drop me a line—my address is JimHeid. I'm also on CompuServe as 76174,556. I'll leave you to explore these aspects of online life; after all, we're here to scarf up software.

First Steps

GETTING SET UP TO DOWNLOAD software involves several steps. First, you need to configure your communications software settings to match those of the remote system. That means specifying a phone number to dial (the starter kits for commercial services include a list of them) as well as various communications settings, including the data-transmission rate—often called the *baud rate* or *bit rate*—which is usually 1200 or 2400 bps (bits per second). (Modems that operate at 9600 bps are also available, but few information services support such fast connections. Look for this to change in the next year or so.) Generally, you configure communications just once, before you sign on for the first time.

Both Smartcom II and MicroPhone II include canned, properly configured *settings files* for CompuServe, as well as a variety of *scripts* that automate access to CompuServe. (An automatic log-on script, for example, dials the modem and supplies your ID number and password.) If your telecommunications program doesn't have these canned settings files,

configure your communications settings to 7 data bits, 1 stop bit, even parity, and the fastest speed your modem supports (usually 1200 bps or 2400 bps). These basic settings ensure that your modem and CompuServe's will be able to connect.

The CompuServe membership brochure that accompanies most communications programs includes a temporary ID number and password you can use to sign on for the first time. The America Online software automates the sign-on process—simply start the program and follow the on-screen directions. (Have a credit card handy—you'll need it to supply billing information.) CompuServe Information Manager's Signup works similarly.

Before the Download: Choosing a Transfer Protocol

ACCURACY IS PARAMOUNT WHEN DOWNLOADING software, since even one missing or garbled bit will render a downloaded program useless. If you're using a general-purpose communications program, you need to perform another step before downloading: you must choose a *file-transfer protocol*. That's a three-dollar phrase, but it simply refers to a set of rules that both computers use to ensure that a file is transferred accurately.

With a file-transfer protocol, the sending computer (in this example, CompuServe's mainframes) sends the file in chunks called *blocks*. When the Mac receives a block, it compares notes with CompuServe to make sure the block was received accurately. If it wasn't, the Mac requests the block again. If it was received accurately, the Mac gives the go-ahead to send the next block. This Did-you-get-it-Yes-I-did banter continues until the entire file has been transferred.

Several file-transfer protocols exist—XMODEM, YMODEM, ZMODEM, Kermit, CompuServe A, CompuServe B, MacTerminal. There are even variants within each particular type of protocol—XMODEM-CRC, XMODEM-1K, CompuServe B Plus. All the text-oriented services, such as CompuServe, support XMODEM. MicroPhone II, Smartcom II, and White Knight all support XMODEM, YMODEM, ZMODEM, and their variants as well as Kermit; but only Smartcom II supports the CompuServe B Plus protocol.

Each protocol and variation thereof uses different block sizes, different error-checking techniques, or both. For example, the original XMODEM uses a small 128-byte block size, while XMODEM-1K uses large 1024-byte blocks. This larger block size means the online service spends less time asking your Mac if things are OK, and more time

transmitting the file. The downside: If the phone lines have too much *noise* (electronic interference), the transmitting computer has to spend more time resending blocks. Small block sizes are best for noisy connections, while large block sizes are best for clean connections. If you've chosen a protocol that uses a large block size and you find you're getting a lot of *retries*—retransmitted blocks—during a download, chances are you have a noisy connection and could benefit from choosing a protocol that uses a smaller block size.

In the end, the underlying details behind these protocols aren't important. What is important is that you set up your program to use a transfer protocol that the sending computer also supports. I recommend starting out with XMODEM. As you become an experienced downloader, you might want to experiment with other protocols to see if they reduce downloading times, and if so, by how much. If you use CIM or America Online, you don't have to fuss with transfer protocols. CIM automatically uses the CompuServe B Plus protocol, while America Online uses its own transfer protocol.

How to: Smartcom II Choose File Transfer Protocol from the Settings menu. In the dialog box that appears, select the XMODEM Standard button and check the Auto-Receive MacBinary option. If you want downloaded files to be stored in a specific folder, click on the Select button and then choose the folder.

How to: MicroPhone II Choose Protocol Transfer from the Settings menu. From the Protocol pop-up menu, choose XMODEM.

How to: White Knight From the Options submenu under the Customize menu, choose X-Y-ZMODEM. In the dialog box that appears, be sure XMODEM-Classic is selected.

Downloading from CompuServe

ONE WAY TO LOCATE FILES AVAILABLE for downloading is to go into a specific forum (such as one for games, sounds, or fonts) and then look around. Let's say you want to see what's been added to the arcade and action games section of the games forum within the last week. From any CompuServe menu, type **go macfun** and press the return key. When the forum menu appears, type **3** and press return to enter the file libraries. When the menu of libraries appears, type **2** and press return to enter the Arcade/Action Games library. Finally, type **cat/des/age:7** and press return. This displays a catalog (**cat**) and description (**des**) of files added within the past seven days (**age:7**).

continues

Mirror mirror on the wall, what's the fairest printer deal of all?



IT'S QUICKOR!!

IMAGE ENHANCERS

Enhance your image with one of these perfect postscript printers



QuickKor TS

- **PostScript Level 2**
Adobe's latest postscript page description language means faster printing from many programs.
- **9 Pages per Minute**
The Sharp engine speeds through documents 50% faster than old fashion 6 ppm printers.
- **300 dpi**
At 300 dpi type AND graphics both look great.
- **Auto switch paper trays**
Extra convenience! Switch automatically between letter, optional legal or envelope trays.
- **Super fast RISC**
The 6.25 MHz Weitek RISC processor makes light work of complex graphics.
- **2 MB RAM**
2MB RAM upgradeable to 10 makes short work of even your largest documents!
- **SCSI port for a HD**
Store even more printer fonts on an optional HD attached to your QuickKor TS.
- **35 Adobe P/S fonts**
The QuickKor TS has a whole library of genuine Adobe postscript fonts built in.

With 1 Year Warranty Just
\$1588

Lease Only \$69/mo. 36/10%

ADD:

- 2 year warranty..... \$100
- QuickKor Kare..... \$200
- 2 MB RAM..... \$229
- 4 MB RAM..... \$349
- 8 MB RAM..... \$588
- Toner..... \$54
- Envelope Tray..... \$329

At MacFriends you can get a printer just the way you want it!

MacFriends QuickKor TS is top rated!

	Overall Performance	Street Price
Texas Instruments microLaser Turbo	██████████	\$1950
MacFriends QuickKor TS	██████████	\$1588
Texas Instruments microLaser Plus PS35	██████████	\$1400
Dataproducts LZR 960	██████████	\$1800
GCC BLP IIS	██████████	\$2599
Hardware That Fits TealTech Laser	██████████	\$1695



*As in MacUser Sept. 1992. Call for reprint

QuickKor 600

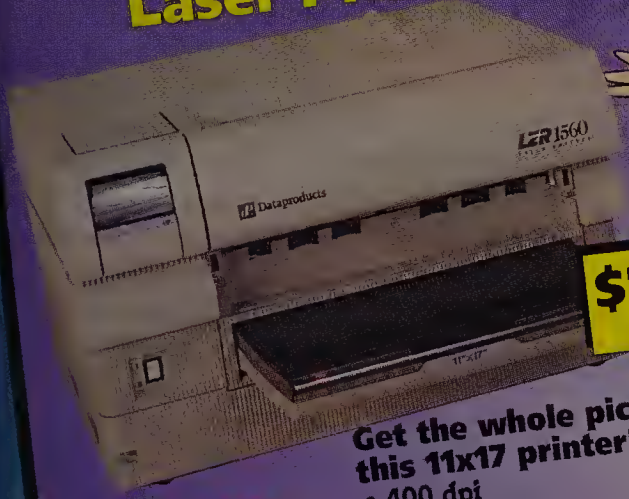
The QuickKor 600 has all the benefits of the QuickKor TS plus...

- **600x600**
Extra high resolution is like having a printing press on your desk!
- **8 MB RAM**
8MB RAM lets you print the largest documents with ease.
- **2 Year Warranty**

Print your own masterpieces with this 600x600 laser printer

\$2488
Lease Only \$91/mo. 36/10%

11X17 Dataproducts Laser Printer



Big prints for pennies a piece!

\$3688

- Get the whole picture with this 11x17 printer!
- 400 dpi
 - Up to 16 ppm
 - SCSI port for adding a hard drive
 - Super fast RISC processor
 - 11 X 17 tabloid size
 - 35 Genuine Adobe PostScript® fonts

8 MB RAM



Call MacFriends Today... The QuickKor The Better!!

Call Toll Free Today!

800 331-1322



24 HOUR QUICKFAX: (503) 286-8710 LOCAL: (503) 286-9350

Apple IIg Laser Printer



Move up to Apple's top-of-the-line Laserwriter IIg

- **8 MB RAM**
- Up to 6 ppm
- 68030 at 25MHz
- 300 dpi + fine print for superb type
- 35 Genuine Adobe PostScript® fonts
- Fine Print & Photograde options for grayscale printing
- SCSI port for adding a hard drive
- Built-in ethernet fast networking

\$3688



Call and talk to a real Mac expert and be sure to ask about optional QuickKor Kare!

QuickKor Kare

- 2 years extended service
- Next day air equipment replacement
- Unlimited toll free technical support (Unlimited hand holding by experts!)

You can add a *keyword* to narrow your search; for example, **cat/des/age:7/key:poker** searches for week-old poker games. Keywords let you search for descriptive words assigned to the file when it was originally uploaded. Omit the **age** portion of the command to search all files regardless of when they were uploaded.

The file descriptions include a variety of information, but the most important information is the file name as it's stored on CompuServe's computers. When you've found a file you want to download, you'll type this name.

Say you want to download a file called Ataxx (see "Deciphering CompuServe Descriptions"). At CompuServe's **Enter choice!** prompt, type **dow ataxx.cpt** (**dow** is for *download*) and press return. You'll see a menu of available file-transfer protocols. Type **1** and hit the return key to choose the XMODEM protocol, and then tell your program to begin receiving as follows.

How to: Smartcom II Click on the Recv icon. When the Receive A File dialog box appears, choose a disk or folder for the received file, and then click on Begin or press return. (You needn't type a name for the file; CompuServe will supply the name during the download.

How to: MicroPhone II Choose Receive from the Transfer menu. In the dialog box that appears, choose a disk or folder for the received file if you like, and then click on Receive or press return.

How to: White Knight Choose XMODEM Protocol from the File menu's Receive File Using submenu. To specify where a file will be stored, use the File menu's Received File Destination command before downloading.

CompuServe also provides a file-finder feature that lets you automatically search all Mac forums at once instead of entering each forum. This is handy if

you're not sure where a certain type of file might be. To access CompuServe's file finder, type **go macff** and hit the return key at any CompuServe menu. The file finder lets you search by numerous criteria—submission date, forum name, and so on—but you'll probably find the keyword option the most useful.

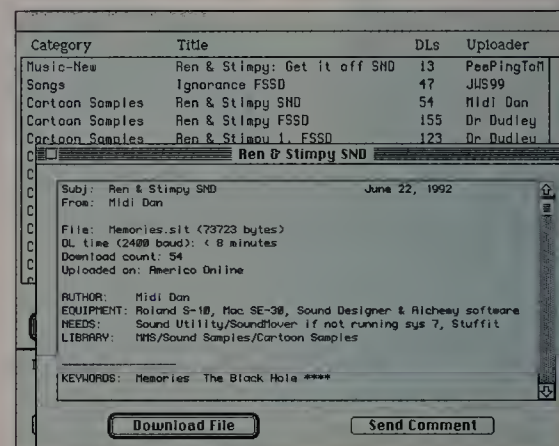
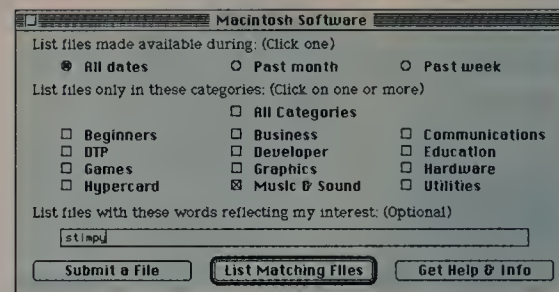
The main drawback of CompuServe's file finder is that you can't directly download a file that it has found; instead, you need to jot down its name and location, and then move to that forum to download it using the techniques just described. This drawback doesn't apply if you're using CompuServe Information Manager.

Downloading from America Online

AS YOU CAN SEE, ACCESSING COMPU-SERVE using a general-purpose communications program means typing your way through a maze of text menus. CIM streamlines the process, but it's still clunky compared with America Online.

As with CompuServe, you can locate files on America Online by visiting each forum or by using a file-search feature. To jump directly to the software libraries, choose Keyword from the Go To menu, type **software**, and click on OK. This displays the Software Libraries window, whose first entry is File Search. Double-click on File Search and the file-finder window appears (see "Finding Online").

America Online also offers fast access to the most popular downloads. In the Software Libraries window, double-click on Macintosh—Top Downloads to display a window of the current month's most popular downloads. If a given file sounds interesting, double-click on its entry to display a description window. To download the file, click on the description window's Download File button and then specify a location for the file. America Online lets you know how much time



Finding Online America Online's file finder makes locating files easy. Top: On the prowl for digitized Ren and Stimp sounds (note the keyword). Bottom: The File List window (in the background) lists files located by the file finder. Double-clicking on an entry opens another window containing a description of the file and a button for downloading it.

downloading will take, and when it's done, a digitized voice announces, "File's done."

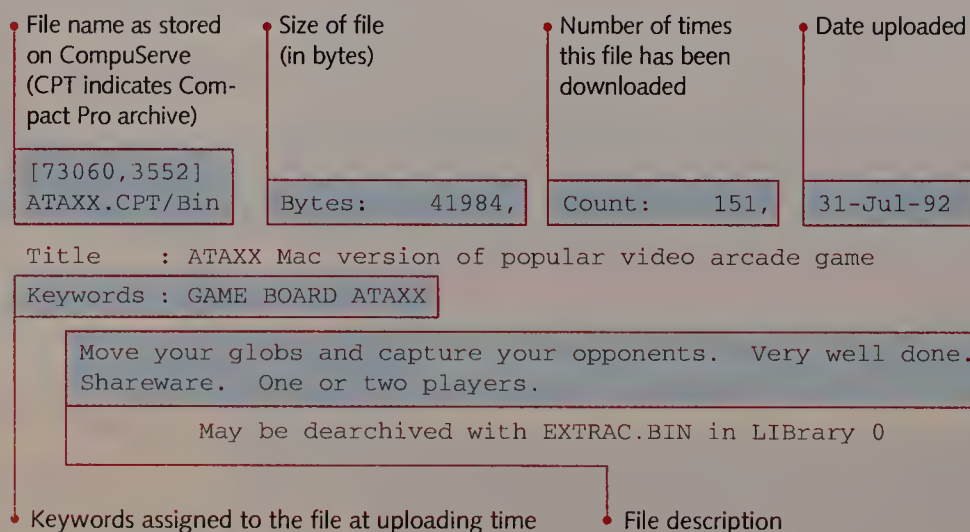
America Online 2.0, released last summer, also lets you mark a group of files for deferred downloading. Instead of downloading files one by one, simply select them all, and America Online downloads them in one fell swoop.

After the Download: Decompressing

ONCE YOU'VE DOWNLOADED A PROGRAM, you'll probably be eager to try it out. But there's still one more task to perform. Files downloaded from an online service are stored in a *compressed* form that takes up less disk space and, more important, requires less time to upload and download. The person who uploaded the file used a file-compression utility such as Aladdin Systems' StuffIt series, Fifth Generation Systems' DiskDoubler (formerly from Salient), or Bill Goodman's Compact Pro to create what's often called an *archive*—a single disk file that contains one or more files that have been compressed. Before you can try out the programs you've downloaded, you must *decompress* them to their original form.

The compression utilities I just mentioned have the ability to create *self-extracting archives*—archive files that you can decompress without a copy of the compression utility. These days, many programs and files available on information services arrive as self-extracting archives. You can recognize such a file by looking

Deciphering CompuServe Descriptions



at its name; self-extracting archives usually have the characters *sea* tacked onto their names. Decompressing a self-extracting archive is easy: double-click on its icon and then specify where you want the decompressed file or files to be stored.

If the file's name ends with other characters, it probably isn't a self-extracting archive, and you'll need a copy of the compression utility to open and decompress the archive. Archives whose names end in *SIT* were created using StuffIt—most files available online are either self-extracting archives or StuffIt archives. You can decompress StuffIt files using the shareware StuffIt Lite, which is available online as a self-extracting archive. Or you can download UnStuffIt, a free, stripped-down StuffIt that can decompress files but not compress them. A free, decompress-only version of Compact Pro is also available online.

America Online 2.0 also streamlines the decompression process by automatically decompressing StuffIt-format archives as soon as you sign off.

Other Downloading Opportunities

I'VE CONCENTRATED ON FREEWARE and shareware forums here, but there are other online sources for software, too. Many developers have customer-support forums on CompuServe and America Online, and have their own software libraries that contain demo versions of their programs, sample documents, answers to commonly asked questions, and more. Hardware vendors often post the latest versions of the system extensions their products require. The extensions are free except for the connect-time charges.

Then there are *bulletin boards*, small-scale online services often run by user groups or avid hobbyists. A free HyperCard stack by Jay Rose called National BBS List (available online) contains a list of over 1000 bulletin board systems. A list of bulletin boards also accompanies White Knight.

The technicalities behind downloading can seem complicated at first, especially if you use text-oriented services like CompuServe. Just remember the following steps: make sure your communications settings and transfer protocols match those of the service you're using, decompress your files after downloading them, and pay for the shareware you use—even if you aren't a Grateful Dead fan. **m**

See *Where to Buy* for contact information.

Contributing editor JIM HEID looks at a different aspect of Mac fundamentals each month. His latest book, coauthored with Peter Norton, is a second edition of *Inside the Apple Macintosh* (Brady, 1992).

GRAY METAL. BLUE SKIES. RED TRACERS.

Wage A Full-Color F-16 Firefight From The Cockpit Of Your Mac.

Now the air/ground action explodes across your screen in Falcon® MC. Your goal? Complete 12 grueling missions in a hellish campaign to wipe out the enemy's strategic positions.

Attacking with MiG-29s and SAMs, the enemy will show no mercy. Luckily, your F-16 carries the latest weapons including air-to-air missiles and deadly laser-guided bombs for destroying ground targets.

Instant Action mode will drop you in the center of a dogfight for all the close-up thrills of an arcade game. So, if you've got the guts, Falcon MC gives you the glory.



Available for Color Macintosh at your favorite retailer
or call: 1-800-695-GAME.

2490 Mariner Square Loop, Alameda, CA 94501
510-522-1164

Circle 214 on reader service card

AN EYE FOR
DESIGN

Look for the new
Multi-Ad Creator™ 3.5
to create exciting
ad layouts
with ease.

Call
1-800-447-1950
EXT-355

APPLE®
MACINTOSH®
ONLY

Multi-Ad
Creator™

Multi-Ad Creator is a product of MULTI-AD SERVICES, INC.™
1720 West Detweiller Drive • Peoria, IL 61615-1695

Circle 126 on reader service card

Now, You Can Even Remove The Risk.



A lot more goes into a Mass Microsystems™ removable drive than simply a SyQuest® mechanism.

A good place to start. Yet until the removable drives pass 37 of the industry's most grueling tests, they don't earn our DataPak™ name. Tests that examine every wire. Every connection. Everything. Right down to the rubber feet.

It's obviously a lot more extensive than the typical burn in. But it's the reason Mass Micro DataPaks have the highest rate of reliability anywhere.

An edge we intend to keep. That's why Mass Micro is the first company to include Active Termination on every DataPak 45MB or 88MB, reducing SCSI-related problems that plague other drives.

PadLok™ software is something else you'll find only on our pre-formatted DataCart™ cartridges. Giving you ultimate security and across-the-board SyQuest compatibility.

Another Mass Micro exclusive is the number of configurations we offer. Like a DataPak that fits in

Quadras; or one that sits neatly atop a Ilci; or a duet model with two selected drives. Even the free DataCart cartridge that comes with every drive is



Only Mass Micro DataPaks have Active Termination. Without it, SCSI can be a risky business.

How many companies offer a Lifetime Warranty on cartridges? You're looking at it. And one's included with every drive.

the safest bet. Because every cartridge with the DataCart name comes with a lifetime warranty—yet another feature you can't get anywhere else.



Our award-winning DataPak removable cartridge drives are available in two capacities—45MB and 88MB. We also feature more footprint configurations than anyone else in the industry.

Mass Micro stands alone for still another reason: The number of awards we've won for our removables. Nobody's won more MacUser Editor's Choice or user-elected MacWorld World-Class awards. Of course, we have an unfair advantage here. We were the first to bring SyQuest technology to Macintosh and, subsequently, have sold more than anybody else.

So don't take any unnecessary risks. Call Mass Micro at 1-800-522-7979. And ask for our award-winning DataPak.

We'll remove any doubt about whose storage to buy.



© 1992. Mass Micro, Mass Microsystems, DataPak, PadLok, and DataCart are trademarks of Mass Microsystems. Macintosh and Mac are registered trademarks of Apple Computer, Inc. SyQuest is a registered trademark of SyQuest Technology, Inc.

HOW TO LOTUS 1-2-3 FOR MACINTOSH

Insights

BY PHILIP STEIN

It's As Easy As . . .

Today's Lotus 1-2-3 for Macintosh is nearly as different from the original product as the first 1-2-3 was different from ledger and pencil. It's a versatile presentation tool, problem solver, and yes, it's even a programming language. Here are some tips to help you get the most out of this sophisticated and powerful product, with thanks to Yuko Takagi and Chris Reckling of Lotus for their help (Lotus is at 617/577-8500).

According to Form

Lotus provides data entry forms for spreadsheets that have been organized as data-

bases. Highlight the data, along with column headings, and choose New Form from the Data menu. The resulting entry form is, in fact, automatically saved as another sheet in the same file, and the first few lines are reformatted to look like an entry form.

The entry form screen can be used to browse or search the data, enter new records, and modify existing ones. Sometimes you want computed records to appear right on a form; in a personnel database, for example, you could calculate a new field for years of service from a hire-date entry in an existing field.

To make a computed field,

though, you can't refer to the data in the entry form. The actual data for a record selected on the entry form resides on the data sheet. Put the formula in the display area of the entry form, but get the data from the data sheet. For the years-of-service example, if the hire date is in cell J515, replace the years-of-service cell in the display area with `@INT((@TODAY-J515)/365.224)`.

.....

But Does It Fit?

When your spreadsheet is too large to fit on the screen, first try changing the font, size, or style to something smaller. Do

this by selecting Global Settings from the Worksheet menu and making changes in the dialog box that pops up, rather than selecting all cells and using Font from the Style menu—the latter method results in enormous data files. Try using the Helvetica Narrow font for a real squeeze. If your data still doesn't fit on screen, you can scroll to see what you're working on, but doing so will probably hide the row and column headings. To remedy this, split the window by dragging the split-screen icon, or use the Split command from the Window menu. When you have made both horizontal and vertical splits, dragging the icon where the scroll bars meet in the center changes the size of all four panes at once. The panes scroll together unless you uncheck the synchronize scroll box, accessible from the Window menu's Split command. If you get lost, check this box again and the windows will re-synchronize.

If you need even more room on your screen, move or close the draw and style palettes and the status window. Also, double-clicking on the shaded bar at the left edge of the "console" shrinks that bar. When you save your work, the positions of the floating toolboxes are saved as well. To restore them to their original locations, hold down both the ⌘ and option keys when launch-

continues

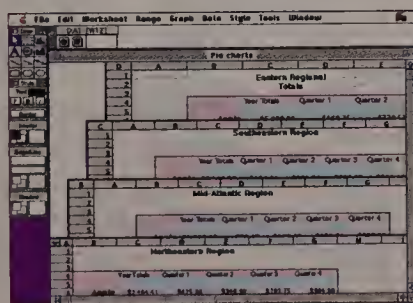
Getting Some Perspective

In Lotus 1-2-3 you can save up to 256 spreadsheets as part of the same data file. This means you can make a true 3-D spreadsheet. For example, one spreadsheet could show regional sales results, by calendar quarter, by product line, with a yearly summary. A second, similar spreadsheet could display mid-Atlantic results, and so forth. A summary spreadsheet could add up the regions and display national totals. As many as 9 spreadsheets of the 256 can be arrayed on screen in perspective (see "Pie Chart Pile"). To layer a group of spreadsheets, choose Split from the Windows menu and click on the Perspective radio button, then click on OK. Data entry forms and macro

sheets are also kept as pages in the group of spreadsheets.

A navigator pop-up menu appears at the upper-left corner of the active spreadsheet, allowing you to choose a sheet on which to work. The selected spreadsheet is highlighted with a dark border.

You can hide columns from view, and the same can be done for whole spreadsheets. Choose Hide I Show from the Worksheet menu and click on the Sheet radio button. A hidden spreadsheet disappears from the navigator pop-up menu—you can tell when a sheet has been hidden by the absence of an entry, since spreadsheets are always labeled A, B, C, and so on, and listed alphabetically under the pop-up menu.



Pie Chart Pile Up to nine sheets may be stacked in a window, making visualization of three-dimensional data especially easy.

ing 1-2-3 from the Finder. If you closed them, choose Floaters from the Windows menu, and you'll be given an opportunity to retrieve them. The status bar at the bottom of the screen might seem less useful than some of the other floaters, but when there's a circular reference in a set of formulas, a button named Circ appears there and you can find the location of the problem by clicking on the button. If you have limited screen real estate, dialog boxes—for example the Move Cells box—will sometimes cover up what you're looking for. Double-click on the title bar of a dialog box and it will roll up like a window shade, leaving only the title bar of the box on screen. Double-click on the bar again to restore the full dialog box.

Dolling It Up

A table of numbers is sometimes the right way to display data, but often a graph not only enlivens a presentation, but enhances communication and understanding as well. Lotus 1-2-3 can automatically generate a wide range of typical two- and three-dimensional graphs. Just highlight the data to be plotted, along with labels if they're on the sheet; from the Graph menu choose New Graph, then select the type of display you want from the pop-up palette, and stand back (see "Pie Charts"). You can also tear off the graph palette.

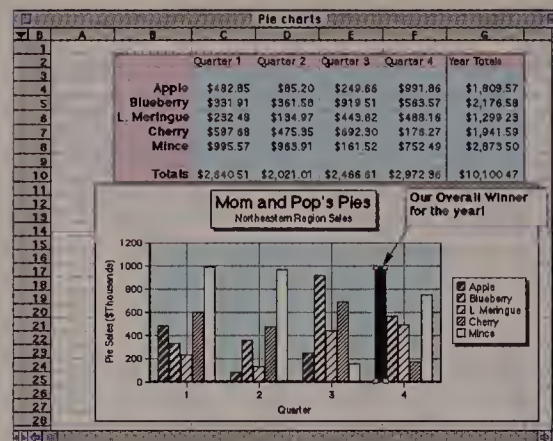
After a graph is plotted, you can move it, resize it, and change virtually every label or color. When the data changes, the bars or segments adjust accordingly but retain your cosmetic settings. Use the draw tools to add text boxes, arrows, and other display elements.

You can change the graph type without selecting the data again. When a graph is selected, the New Graph menu item is replaced by Change Type. Simply select another type. Try a few to see which communicates your data best. If the graph palette is already torn off, just click on the new

type desired. When the graph looks right, click on various elements and adjust the color or shading. The legend box automatically reflects your changes. When you select a category within a graph (for example, Apple Pie), all bars of that particular type are highlighted, and changing one bar changes them all. By option-clicking on a bar, it alone is selected and can be emphasized as you wish (see "Our Overall Winner").

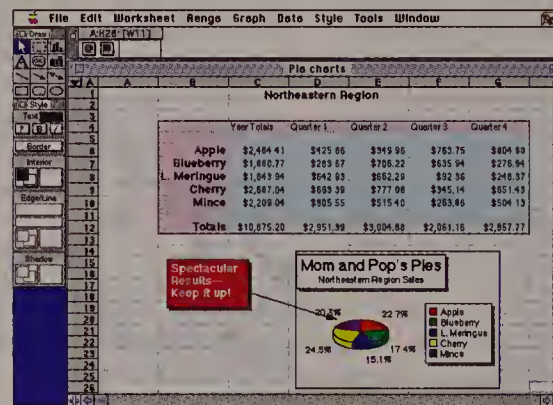
From a Strange Land

If you have moved to Lotus 1-2-3 for Macintosh from Microsoft Excel for the Macintosh or 1-2-3 for DOS or Windows, the transition should be quite easy. Here are a few ways to make it even easier. Online help is available at all times. From the keyboard, hit \mathbb{H} -. If you want a description of a menu item, just select it while help is open—the help system turns right to the appropriate page. In a dialog box, where many programs offer no assistance at all, there's almost always a box in the upper-right corner, ready to take you back to the help files. Best of all, there's a whole set of item-by-item menu translators for Excel and DOS 1-2-3 users. Click on the Excel/123 button at the bottom of the help screen and you get a full list of Excel commands and their 1-2-3 equivalents. If you're used to 1-2-3 Release 2 or 3 for DOS and you just can't get the hang of the Mac, don't despair. Just pretend you're using a DOS computer. Yes, the screen is white and the letters are black, but you can make almost everything else look the same. Hitting the slash (/) key brings up the 1-2-3 Classic menu. From here on out, everything looks and works just like the DOS version—right down to the type style in the menus and the prompts on the second line of text. If you're tired of the nostalgia, just click on the close box or keep hitting the esc key until the classic display goes away.



Our Overall Winner

Option-click on a bar to select it individually—without including others in its category. Then change color or shading to highlight it.



Pie Charts This graph was plotted automatically from the data above it, including the legends and coloring. You can easily add text boxes and arrows like the ones shown.

Excel users will find many functions and facilities very familiar and will be able to get right to work. They will also like the function and range pop-ups on the console. But one useful capability that is missing from 1-2-3 is Excel's Fill Right and Fill Down commands. Luckily, Lotus provides macros for these functions, and they can easily be added to a menu and assigned keyboard shortcuts. Choose Open from the File menu and locate the Worksheet Templates folder in the Lotus 1-2-3 directory. In that folder is an item named Fill Right, Down, Through. Opening this file automatically adds those macros to the Tools menu and, on an extended keyboard, allows you to use control-option-R, -D, or -T as shortcuts. As with any 1-2-3 macro, you may use the draw palette to create on-screen push buttons that activate these functions.

Just one second, though—Fill Right and Fill Down are familiar, but what's Fill Through? That's an analogous operation for the third dimension. When you have several stacked sheets, you click on the first cell in a range (for example, A:D3) and then find the last sheet of interest and shift-click on the last cell (for example, E:D3). The Fill

Through operator copies the contents of A:D3 into cell D3 of sheets B, C, D, and E.

To transfer work from Excel, simply open the Excel file from within 1-2-3. Almost all worksheets and graphs translate perfectly, as do most macros. Don't save Excel sheets in .WK1 or .WK3 format to move them to 1-2-3 for Macintosh, though—any dates will be four years off, because Excel and 1-2-3 handle them differently. The 1-2-3 translator fixes the problem when reading Excel files. There are also differences in the way the two products handle the INT, MOD, and AVG functions; and some operator precedence assumptions may be different. If you've used any sophisticated formulas or functions, it's best to do a little checking before using an imported spreadsheet.

Share the Wealth

If you have a tip, technique, or shortcut that wasn't mentioned here, share it with other *Macworld* readers by sending it to *Quick Tips*, *Macworld*, 501 Second St., San Francisco, CA 94107. [m](#)

PHILIP STEIN consults and lectures widely on measurement science, statistics, quality, and automation.

Where to Buy

Products Featured in This Issue

EDITED BY SUZANNE COURTEAU

THIS LISTING PROVIDES COMPANIES AND PHONE NUMBERS FOR PRODUCTS MENTIONED IN THIS ISSUE.

1992 GAME HALL OF FAME

Amtex Software Corp.
408/749-0990; fax 408/733-7451.

Brøderbund Software
415/382-4400, 800/521-6263; fax 415/382-4419.

Casady & Greene
408/484-9228, 800/359-4920; fax 408/484-9218.

Graphic Simulations
214/699-7400; fax 214/699-0972.

LucasArts Games
415/721-3300, 800/782-7927; fax 415/721-3342.

Maxis Software
510/254-9700, 800/336-2947; fax 510/253-3736.

Spectrum HoloByte
510/522-3584, 800/695-4263; fax 510/522-3587.

Three Sixty
409/776-2187; fax 409/776-4216.

Velocity Development
415/776-8000; fax 415/776-8099.

DESKTOP CRITIC

Addison-Wesley Publishing
617/944-3700, 800/447-2226.

Berkeley Systems
510/540-5536, 800/877-5535; fax 510/540-5115.

The Computer Lab
703/527-6032; fax 703/527-6207.

Global Computer Supplies
310/635-8144, 800/845-6225.

Harry & David
503/776-2121, 800/547-3033.

Hayden, a division of Prentice Hall
317/573-2500, 800/428-5331.

Heizer Software
510/943-7667, 800/888-

7667; fax 510/943-6882.

Insanely Great Software

713/524-6394, 800/242-4775; information only 908/548-5107.

Knowledge Revolution
415/553-8153, 800/766-6615; fax 415/553-8012.

Peachpit Press

510/527-8555, 800/283-9444; fax 510/524-9775.

Precision Line

612/475-3550, 800/328-0077.

Suntime

813/886-1145; fax 813/884-8945.

GETTING STARTED

Aladdin Systems

408/761-6200; fax 408/761-6206.

America Online
703/893-6288, 800/827-6364.

CompuServe
800/848-8199.

Fifth Generation Systems
504/291-7221, 800/873-4384; fax 504/295-3268.

The FreeSoft Company

412/846-2700; fax 412/847-4436.

Hayes Microcomputer Products
404/441-1617; fax 404/441-1213.

Software Ventures Corp.

510/644-3232; fax 510/848-0885.

HARD DRIVE RX

Apple Computer

408/996-1010.

Central Point Software

503/690-8090, 800/445-4208; fax 503/690-8083.

CE Software

515/224-1995, 800/523-7638; fax 515/224-4534.

DriveSavers

415/883-4232; fax 415/883-0780.

FWB

415/474-8055; fax 415/775-2125.

Icom Simulations

708/520-4440, 800/877-4266; fax 708/459-7456.

Inline Design

203/435-4995; fax 203/435-1091.

Microcom

919/490-1277; fax 919/490-6672.

Symantec Corp.

408/252-3570, 800/441-7234; fax 408/252-4694.

NEW POWERBOOKS

Apple Computer

408/996-1010.

Compaq

800/345-1518.

James Engineering

510/525-7350; fax 510/525-5740.

Kensington Microware

415/572-2700, 800/535-4242; fax 415/572-9675.

Newer Technology

316/685-4904, 800/678-3726; fax 316/685-9368.

Outbound Systems

303/786-9200, 800/444-4607; fax 303/786-8611.

Texas Instruments

800/527-3500.

TAPE BACKUP BOUNTY

APS

816/478-8300, 800/233-7550; fax 816/478-4596.

Blackhole Technology

617/721-7690, 800/227-1688; fax 617/721-7260.

Club Mac

714/768-1490, 800/258-2622; fax 714/768-7307.

CMS Enhancements

714/222-6000; fax 714/549-4004.

Contemporary

Cybernetics Group

804/873-9000; fax 804/873-8836.

Dantz Development Corp.

510/849-0293.

DynaTek Automation Systems

416/636-3000; fax 416/636-3011.

Fifth Generation Systems

504/291-7221, 800/873-4384; fax 504/295-3268.

FWB

415/474-8055; fax 415/775-2125.

continues

MAC BEST

1-800-530-5050

International (816) 741-6587

Fax (816) 741-6847

COMPUTERS

CLASSIC II 4/40	\$999	QUADRA 700 4/80	\$3949
CLASSIC II 4/80	1139	QUADRA 700 4/230	4259
MAC LC II 4/40	1159	QUADRA 700 4/400	4949
MAC LC II 4/80	1269	QUADRA 950 8/0	5499
MAC IISI 5/80	1779	QUADRA 950 8/230	6229
MAC IIVI	CALL	QUADRA 950 8/400	6899
MAC IICI 5/0	2269	PB 145 4/40	1999
MAC IICI 5/80	2429	PB 145 4/80	2399
MAC IICI 5/230	2759	PB 170 4/40	3599
MAC IIVX	CALL	PB 170 8/80	3949
QUADRA 700 4/0	3569	PB 160/180	CALL

MONITORS

APPLE 12" RGB	\$399	RADIUS COLORPIVOT/LE	\$849
APPLE 13" RGB	599	RADIUS PIVOT	699
APPLE 16" RGB	999	RADIUS 19" MONO	929
APPLE 21" RGB	3499	RADIUS 21" MONO	1199
APPLE 12" MONO	199	SUPERMAC 17" COLOR	999
APPLE PORTRAIT	739	SUPERMAC 20" COLOR	1499
NEC 3FGX	699	LAPIS PORTRAIT	499
NEC 4FG	789	SEIKO 14" COLOR	539
NEC 5FG	1349	SONY 1304S	599
NEC 6FG	2969	SONY 1320 FOR LC II	425

PRINTERS

STYLEWRITER	\$349	GCC BLP ELITE	\$1199
PERSONAL LASER LS	899	GCC BLP ELITE 8	1459
PERSONAL LASER NTR	1689	GCC WRITEMOVE II	499
LASERWRITER IIF	2549	HP DESKWRITER	399
LASERWRITER IIG	3499	HP DESKWRITER C	649

PERIPHERALS

STANDARD KEYBOARD	\$89	TWINCOM 14.4 MODEM	\$349
EXTENDED KEYBOARD	159	SUPRAFAXMODEM 14.4	369
MACPRO PLUS KYBRD	139	PSI POWERMODEM	199
TURBO MOUSE 4.0	129	RASTEROPS 24SX	599
UMAX UC 630	1199	RADIUS 24XP	549
HP SCANJET IIC	1349	LAPIS CARD - 16" RGB	379

SOFTWARE

MS WORD 5.0	\$295	AFTER DARK/MAD	\$36
MS EXCEL 4.0	299	MS FLIGHT SIMULATOR	39
MS WORKS 3.0	155	KID PIX	33
MS OFFICE	459	SIMANT	35
WORDPERFECT 2.1	269	SPECTRE	32
QUICKEN	44	SIMCITY	29
QUARK EXPRESS	559	VETTE	32
ILLUSTRATOR	367	GLIDER	28
CANVAS 3.0	245	RED BARON	38



C.O.D.

2631A NE Vivian, Suite 27 • Kansas City, MO 64118
M-F 9:00 - 7:00 CST SAT 10:00 - 4:00 CST

Prices are subject to change without notice - this usually means lower. COD orders are shipped via Federal Express only and subject to a shipping and COD charge. Returns subject to a restocking fee. Not responsible for typographical errors. Product names are trademarks or registered trademarks of their respective holders.

END INIT CONFLICTS...

If you are experiencing repeatable problems due to an INIT-Conflict Catcher can find the guilty INIT. Through a series of simple tests, Conflict Catcher can pinpoint conflicts caused by individual or multiple INITs. Unlike other INIT testers that rely on the accuracy of old databases, Conflict Catcher tailors its tests to your specific problem. Conflict Catcher can find the culprit even if it's a brand new INIT.



Conflict Catcher™

- can manage INITs as well. It can:
- Passively enable and disable INITs-Doesn't modify the INIT
 - Group Startup Files for easy switching
 - Link Startup Files for those INITs that must run at the same time
 - Reorder Startup files to work around conflicts due to loading order problems
 - Be configured to not patch any traps. Use this feature to be sure a problem isn't being caused by Conflict Catcher!

NEW

And Conflict Catcher comes with other INNOVATIVE UTILITIES:

Memory Maxer™ - Remember when you just ran a program and you didn't have to configure how much RAM it needed - it just took what was there? That's Memory Maxer in a nutshell, small, fast, efficient. Need a little RAM? Tell the finder to quit and you get another 270K - great for accelerating Photoshop™, Excel™ or Pagemaker™!

Color Coordinator™ - Automatically adjusts color settings as you switch back and forth between your color programs. Never again access your color Control Panel for a color adjustment. Switch to black and white for performance and back to color for entertainment - Automatically! **HotDA™** - Opens Apple Menu items with simple, user-defined keystrokes. Open a frequently used Desk Accessory or other Apple

Get Conflict Catcher and Other Innovative Utilities. It's HOT!

\$79.95

Super QuickDEX™

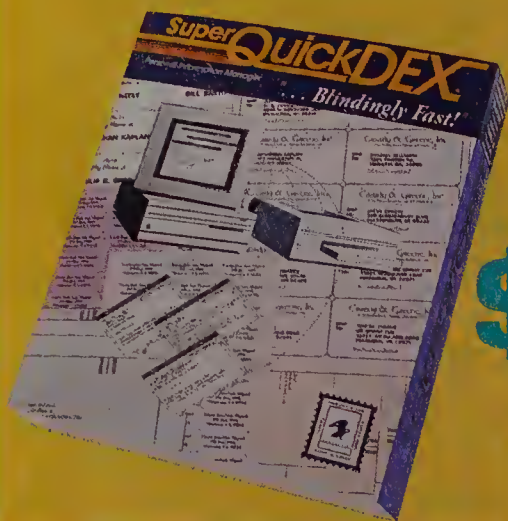
40% FASTER — NEW VERSION 2.58

A 4-Utility package with freeform database and printing utilities that will organize you once and for all! Sort, find, print, label; make templates; auto-dial; print envelopes; FIM and PostNet bar codes certified by U.S. Post Office, custom printing, check for duplicates, and so much more.

"Once you install it, you can't live without it."

Steve Levy, MacWorld Mag.

"...blindingly fast..." John Lewis, MacTimes, UK

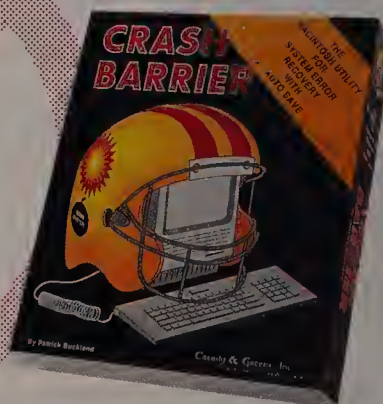


NEW

\$89.95

BAN THE BOMB

NEW



CRASH BARRIER™

NEW VERSION 1.1

An easy-to-use Control Panel device which provides a possible means of recovery from the dreaded system error. Features include assistance with system error prevention & recovery. An auto-saving feature provides back-up in those cases where nothing short of reincarnation can help.

"If it saves you just once, its worth the price"

Steven Bobker, MacUser, Boston

\$79.95

CASADY & GREENE

22734 PORTOLA DRIVE •
SALINAS, CA 93908-1119

1-800-359-4920
FAX 408-484-9218

MISSION:

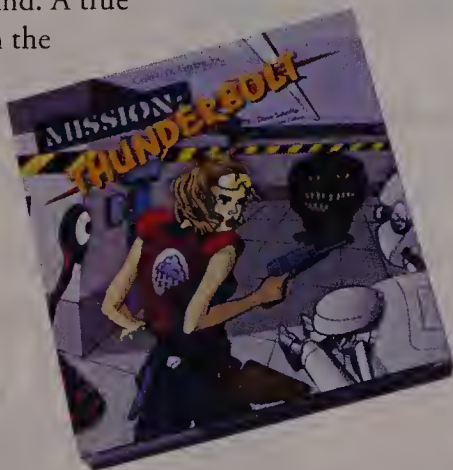
THUNDERBOLT™

Brand new role-playing adventure game! Make your way through underground corridors in search of a deadly anti-matter bomb before it is used against mankind. A true thinker's challenge - 5 years in the making. Its never the same game twice! 7+ megabytes of pure challenge and late-night fun.



\$59.95

Expect to spend 40-80 hours playing one game.



PARARENA™ 20



Vintage John Calhoun! Calhoun, author of Glider 4.0 (Mac World Hall of Fame Winner), has done it again. Pararena is steeped in Calhoun's tradition of attention to detail, from the unique sounds (the player's armor clinking, the roar of the crowd, stadium vendors hawking peanuts) to the physics of the hoverboards gliding over the stadium dish. Still the greatest of the Calhoun tradition, is ENDLESS FUN!

\$59.95

**NETWORKABLE
CHALLENGING
FUTURISTIC**

NEW



GLIDER 4.0™

*Macworld Game
Hall of Fame Award*

Try to keep the paper airplane flying from room to room without being blitzed by the wildest set of obstacles ever. Room editor included.

"The bottom line is that this game is a blast"

The Apple Source-RIMUG

MORE GLIDER!

Loved Glider 4.0 and want more? John Calhoun has built another house! All the fun, frenzy and madness that made Glider so much fun have been put into this brand new house. 64 new rooms form a convoluted maze!

Available directly
only from
Casady & Greene.

Requires Glider 4.0 to play.

\$49.95

NEW

\$20.00

FUN BUNDLE: THREE GAME PACK OF SOLID FUN



14 Mice (collectively) - Mac User Magazine
One Eddy Award Winner
Two Macworld Game Hall of Fame
Winners

- ☐ Sky Shadow
- ☐ Mission Starlight
- ☐ Crystal Quest
w/Critter Editor

\$99.95

**CASADY
&
GREENE**

22734 PORTOLA DRIVE •
SALINAS, CA 93908-1119

1-800-359-4920
FAX 408-484-9218



Half of work is concentration,

To help bring your best ideas to life, Philips introduces brilliantly designed tools that provide the kind of performance you'd expect from a leader in innovation.

Brilliant Performance

Philips offers a full line of state-of-the-art products, most with multi-frequency capability, digital image control, and low emissions circuitry. Display resolutions run up to 1600x1280. And most models offer Philips' exclusive FastRefresh™ capability, which redraws the on-screen image up to 160 times per second* to reduce fatigue caused by image flicker. This level of display performance is for demanding professional applications like CAD/ CAM, advanced graphics, and document preparation.

Multi Compatibility

The Philips line is the perfect match for Intel based and Macintosh computers, as well as most workstations. Thanks to our advanced digital control autoscan technology, these monitors adapt to a wide range of high-resolution graphic controller cards supporting scan rates as high as 82kHz.

the other half is brilliant support.

The integrated front-panel LCD display provides information on product operation and sets a new standard for ease-of-use.

Complete Line of Full-Featured Monitors

Since one size never really fits all, Philips technology is available in 14", 15", 17", 20" and 21" screen sizes, with a model that's right for virtually every application.

Low Emission

Consistent with Philips' leadership position, our new monitors are equipped with VLF/ELF emission circuitry that meets or beats tough Swedish MPR-2 guidelines, and are built to perform for the long term, with 50,000 hour MTBF design reliability. Give your work the support it deserves - brilliant support from Philips.

* Actual refresh rate may be limited by video controller card or software.

Another First From Philips



PHILIPS

Hard Drives
International
 602/350-1128, 800/488-0001; fax 602/829-9193.
Hewlett-Packard
 800/752-0900.
La Cie
 503/520-9000, 800/999-0143; fax 503/520-9100.
Legacy Storage Systems
 416/475-1077; fax 416/475-1088.
Liberty Systems
 408/983-1127; fax 408/243-2885.
MacDirect
 612/832-5706, 800/621-8461.
MacProducts USA
 512/472-8881, 800/622-3475; fax 512/499-0888.
Maynard Electronics
 407/263-3500, 800/821-8782.
Memory Bank
 313/761-2782, 800/562-7593; fax 313/761-3263.
MicroNet Technology
 714/837-6033; fax 714/837-1164.
Microtech International
 203/468-6223, 800/626-4276; fax 203/468-6466.
Mirror Technologies
 612/633-4450, 800/654-5294; fax 612/633-3136.
Novastor Corp.

818/707-9900.
Optima Technology Corp.
 714/476-0515; fax 714/476-0613.
PCPC
 813/884-3092, 800/622-2888; fax 813/886-0520.
PLI
 510/657-2211, 800/288-8754.
Procom Technology
 714/852-1000, 800/800-8600; fax 714/852-1221.
Relax Technology
 510/471-6112; fax 510/471-6267.
Sankyo
 714/724-1505, 800/688-0098; fax 714/724-1501.
SunStor Systems
 714/692-1170; fax 714/692-1615.
Surf City Software
 714/289-8543; fax 714/289-1002.
Storage Dimensions
 408/954-0710; fax 408/944-1200.
Tallgrass Technologies Corp.
 913/492-6002, 800/825-4727.
Tandberg Data
 805/495-8384; fax 805/495-4186.
Tecmar, a Subsidiary of Rexon
 216/349-1009; fax 216/

349-0851.
Third Wave Computing
 512/832-8282, 800/682-0099.
Transitional Technology
 714/693-1133; fax 714/693-0225.
Tulin Corp.
 408/432-9025; fax 408/943-0782. **m**

Public domain software, freeware, and shareware are available through online information services; user groups (call 800/538-9696, ext. 500, for information on a local user group); or mail-order clearinghouses such as Educorp (800/843-9497, 619/536-9999) or the Public Domain Exchange (800/331-8125 outside California, 408/955-0292).



Now your desktop can be as pretty as your screen saver.

Why wait until you're *not* working to have a beautiful screen? With Wallpaper™, your monitor can bloom with color all the time, not just after dark.

Choose from one of the hundreds of included patterns. Or create your own with our complete paint tools. And when you get tired of one pattern, another is just a mouse-click away.

Wallpaper™

For SE 30, Classic II and above **Only \$59.99***



THOUGHT I COULD

107 University Place, Suite 4D • New York, NY 10003 USA

Orders/Inquiries - (212) 673-9724

*New York residents add New York state and/or city sales tax

©1992 Thought I Could™

Circle 173 on reader service card

User Friendly!



Great values are just a phone call away.

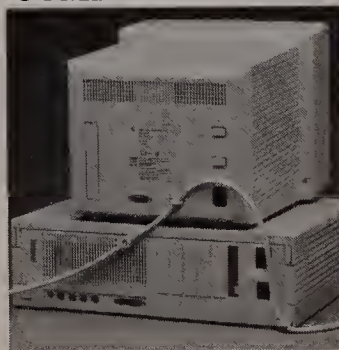
in

THE MACWORLD SHOPPER
 Direct Response. Direct Results.

MACINTOSH SECURITY PRODUCTS

COMPLETE LINE OF PROVEN AND EASY TO INSTALL SECURITY PRODUCTS FOR MACINTOSH COMPUTERS.

PREVENT COMPUTER THEFT!



MacKabli™ Security System

This system allows you to secure all your computer components: CPU, monitor, keyboard, printer. **Internal component security:** Kabli fasteners secure the rear panel of CPU protecting internal boards and hard drives. Fasteners available for all applications. List price \$39.95.

ACCESS SECURITY



Disk Drive Lock™

Prevent anyone from copying your data. Protect your data from harmful viruses. Prevent unauthorized use of your drive. Installs easily and quickly. Models available for all Macintosh models (except Mac Plus). List price \$24.95.

Order your free catalog of these and many other security products. Purchase orders accepted. Quantity pricing available. Shipping not included. MC/VISA accepted. Dealer inquiries invited.

Secure-It, Inc.

18 Maple Court
 East Longmeadow, MA 01028

1-800-451-7592

Circle 239 on reader service card.

CALL DR. MAC 1-800-825-6227

GUARANTEED LOWEST PRICES!

**Over
2,500
items
in stock**

**THIS MONTH'S
SPECIALS**

**CORPORATE
EDUCATION
GOVERNMENT**

**SPECIAL PRICING
P.O.'S WELCOME!
FED. I.D.
95-4183196**

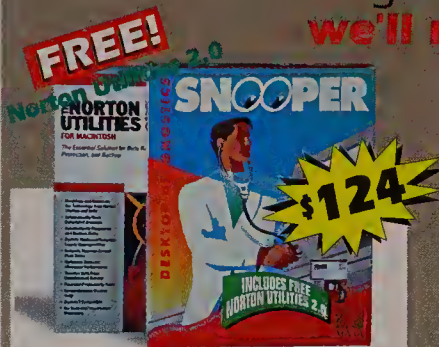
Dr Mac is your **best mail order source** because we guarantee the lowest prices, overnight delivery and money back guarantees. We guarantee overnight delivery to every address in the continental U.S.A!* If you don't get your in-stock order the next day, **we pay the shipping!** If you are not 100% satisfied with the products you purchased, return within 30 days for a full refund. Please ask if the item you wish to purchase carries a money back guarantee when you order (see policies for details). Let Dr. Mac take care of all your Macintosh needs.



Dr Mac
1-800-825-6227 From the
U.S. and
Canada

Circle 177 on reader service card

If you find **any** of the products listed here or in our catalog advertised for less in this magazine, **we'll meet or beat that price!**



SNOOPER 2.0

...Lets you find the problem. Diagnose from your desk with SNOOPER. SNOOPER performs a comprehensive suite of tests, checks all your hardware and identifies any problems. The same SNOOPER software runs on all Macs. SNOOPER is easy to use and saves time and money. Complete your Mac utilities with SNOOPER, the hardware diagnostic, and until Dec. 31, 1992 get Norton Utilities 2.0 FREE.



CAUSE

The Personal Programmer®. The object-oriented development tool with a built-in relational database. Totally cross-compatible between the Macintosh and Dos versions. No language or syntax required. Compiles to stand-alone. Version 3.0 now offers full Macintosh interface. Writes documentation automatically. No royalties. Network version available.



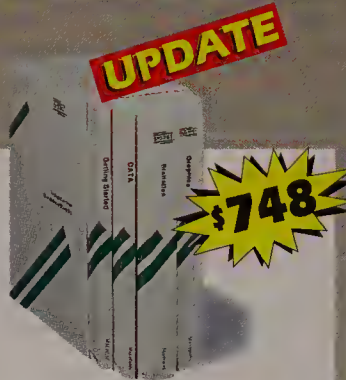
HAYESCONNECT™ 3.0

Don't buy anything else! Use HayesConnect software to turn your modems, printers, plotters, and other serial devices into shared resources on your AppleTalk network. Set up a pool of modems for everyone to use or place your label printer on the network. Sharing resources on your network gives you greater versatility, convenience, and cost control.



CAPITALIST PIG

Animated business simulation game challenges you to build and run your own business under authentic economic conditions. Experience the challenge of business, scandals, fires, terrorists, and more, as you battle for billions or bankruptcy. Make crucial business decisions every minute, and enjoy the results—or suffer the consequences. Packed with sound, animation and fun, it draws rave reviews from would-be entrepreneurs of all ages. Capitalist Pig is the must-have "Game of the Year." You never knew business could be so stimulating!



SYSTAT 5.2 FOR THE MAC

Perform a wide variety of statistical analyses and generate numerous graphical representations of analysis results with SYSTAT 5.2. This new version offers more statistical analyses, a reorganized and redefined interface that's truly Mac-like, and support for QuickTime, allowing you to view dynamic QuickTime movies of SYSTAT graphics.



PLUSWARE NUMERIC KEYPAD

Numerical Power for the Powerbook. Add it up. Powerbooks have the best features of Mac in a powerful but portable package. The Plusware Numeric Keypad combines the best features of an extended keyboard and numerical input device in a small package. Use it as a standard numerical input device or with its "2nd F" key, access 15 programmable function keys, as well as Home, End Page Up and others. The Keypad can be used with any Mac that has an ADB port.



TIMESTWO

Out of space on your hard disk? No problem. Make your hard disk twice as big transparently with TimesTwo! A simple, one-time installation converts any SCSI disk to twice its original capacity in minutes. TimesTwo is 100% transparent, 100% compatible and 100% safe.

Snapback 3-user \$ 98

Disktwin for the SE & NuBus \$ 678



COLOR-IT! 2.0

Color-It! is an easy-to-use 32-bit paint and image processing with the power to create or enhance dynamic images. Color-It!'s sophisticated features are ideal for the novice or professional. The easy-to-learn user interface lets you create dramatic special effects that would normally take hours of darkroom or studio time in just a few minutes. Scan in a photograph...then crop, retouch or alter any part of it. Or use Color-It!'s paint features to create an image from scratch or existing images.

**CALL NOW
FOR YOUR
FREE
CATALOG!**



POLICIES: Credit card is not charged until order is shipped. Shipping \$3. UPS overnight guaranteed. *Hardware over 10 lbs will be shipped ground. **Money Back Guarantees & Returns:** call for RA# before return. Retain original packaging. Restocking fee may apply. Low price guarantee good at time of purchase only.

Fax: (818) 504-9380 or (818) 504-215
11050 Randall Street, Sun Valley, CA 91352 • (818) 504-18

PRINTER CONNECTION



Newgen Turbo PS/440B
\$3495
 11x17 - 400 d.p.i.



Microtek II XE
\$1175
 1200 d.p.i. - w/Photoshop

SYSTEMS

Mac LC II 4/80	1195
Mac IIsi - 5 meg	2259
Mac IIsi - 5/120	2750
Mac IIsi - 5/80	1895
Extended Keyboard	159
Mac Quadra 700 - 4 meg	3550
Mac Quadra 700 - 4/120	3959
Mac Quadra 700 - 4/210	4195
Mac Quadra 950 - 8 meg	Call
Mac Quadra 950 - 8/210	Call
Mac Quadra 950 - 8/540	Call
Mac Powerbook 145 4/40	1995
Mac Powerbook 145 4/80	2450
Mac Powerbook 170 4/40	3495
Mac Powerbook 170 4/80	3749

MONITORS and CARDS

IDEK

15" SVGA Color Display	595
17" Autoscans SVGA Color	995
21" Autoscans SVGA Color	1795
21" Autoscans 80 KHz Color	2495
Radius	
19" Precision Color Display	2290
21" Color Display	2795
Color Pivot	1249
Color Pivot Interface	
II, LC, IIsi, SE, SE/30	515
Pivot Display for Built-In Video	799
Two Page Display 19"	959
Two Page Display 21"	1230
Two Page Display Interface	
SE, SE/30, II, IIsi	399
Precision 8 Interface	515
Precision 24x	1689
Precision 8x	779
Rocket Accelerator 25 Mhz	1700
Rocket Accelerator 33 Mhz	2195
Apple	
Apple 13" Highres	649
Seiko	
Seiko CM-1445	569
Sony	
Sony 14" Trinitron	609
SuperMac	
Platinum 19" Display	964
Platinum Two Page Display	1175
Super Match 19" Color	1929
Super Match 21" Two Page Color Display	2839
Super Match 17" Trinitron	1069
Supermac Thunder Storm Pro	2795
Shamrock 14" Color Monitor	399
Dual Mode Trinitron 19"	2459
Thunder/8	1139
Thunder/24	2295

MONITORS and CARDS (cont.)

Spectrum 8.24 PDQ	839
Spectrum 24 PDQ+	1539
Magnavox	
14" Color Monitor	499
DRIVES	
Quantum 105 Pro	Ext. 469 Int. 369
Quantum 210 Pro	835 710
Quantum 240 Pro	909 789
Maxtor 120	489 369
Maxtor 213	729 609
Maxtor 340	1229 1099
Maxtor 180 meg	1800 1679
Seagate 1.2 gigabyte	2269 2149
Syquest 44MB	499
Syquest 88MB	859
Internal Drive Kit	29
Syquest 44MB cartridge	69
Road Runner 80 meg for Powerbook	369
Fujitsu 425 meg 5 year warranty	1200

PRINTERS

Microtek TrueLaser	1149
TI Microlaser PS35	1329
TI Microlaser PS17	1209
QMS PS410	1475
NEC Model 95	1389
Apple Stylewriter	340
Apple Laserwriter II	2499
Apple Laserwriter IIg	3279
HP Deskwriter	389
HP Deskwriter Color	659
HP IIp for Mac	1539
HP IIip for Mac	1749
HP III for Mac	2379
HP IIsi for Mac	4639
HP Deskwriter Ink Cartridge	18
Appletalk Connectors	25
HP Deskwriter 880C	Call
Newgen Turbo PS 400P (400x400 dpi)	1795
Newgen Turbo PS 630BN (600x300dpi)	2995
Newgen Turbo PS 880B (800x800 dpi)	3895
Newgen Turbo PS 440B 400 dpi 11x17	3495
Color Printers	
NEC PS 40	4395

SCANNERS

Logitech ScanMan 32	279
Microtek II	859
Microtek II XE (1200 dpi) w/Photoshop	1175
Microtek 1850s Slide Scanner	1459
Umax UC-630 w/Photoshop	1129
Caere Typist	429
Microsoft Word	289
Microsoft Excell	309
Aldus Pagemaker	497

SOFTWARE (cont.)

Adobe Photoshop 2.0	515
Quark Express 3.0	579
Caere Omnipage	499

MODEMS

Zoom	
FX9624 Plus 2400 BPS	129
Modem MX 2400S w/SendFax 9600 BPS	95
v.32 Turbo w/v.42bis w/MNP Software	329
Supra Fax Modem 14.4 v.32bis (ext.)	349
Supra Fax Modem 96/96 (ext.)	279
PSI for Powerbook 140 & 170	
internal 9600/2400	229
Global Village Bronze 96/24 for Powerbook	239
Global Village Silver 96/96 for Powerbook	499
Global Village Gold 14.4/96 for Powerbook	639

ACCELERATORS

Daystar	
40 Mhz Powercache	769
40 Mhz Powercache w/68882	899
50 Mhz Powercache	1075
50 Mhz Powercache w/68882	1495
Radius Rocket	1700

MEMORY

1 meg for LC/CI/Sl	34
4 meg for LC/CI/Sl	129
Powerbook 140 & 170 4 meg	175
Powerbook 140 & 170 6 meg	259
Envivio Powerbook Display	
Adapter and memory	Call

CD - ROMS

NEC CDR-74 Gallery	879
NEC CDR-74	679
NEC CDR-37	496
Smart & Friendly w/Cable and	
Classic CD Collection	399
Super CD Collection	499

THE PRINTER CONNECTION

Overnight and Federal Express
 Shipping Available

(714) 758-8832
 fax (714) 635-1752

Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone
26	Adobe Systems	134	800/833-6687	29-36	La Cie	—	800/999-0143	188	P.S.I. Integration Inc.	61	800/622-1722
356-357	Advanced Business Center	227	800/274-7747	387	Liberty Systems	45	408/983-1127	44	Personal Training Systems	44	800/832-2499
73	Aldus	—	800/685-3563	10	Logical Solutions	169	612/659-2495	316	Philips Consumer Electronics Company	—	800-722-6224
16-17	Aldus	—	800-685-3563	24-25	Lotus Development Corp.	—	800-TRADEUP	57	Pinnacle Micro	115	800/553-7070
352-353	Alliance Peripheral Systems	31	800/235-2752	330-331	Mac and More	85	800/945-1MAC	387	Plusware, Inc	51	800/268-7587
163-166	Amaze	—	—	335	Mac Center	77	800/950-0950	391	PORT	123	800-242-3133
6	Anthro	—	800/325-3841	328-329	Mac Products USA	175	800/MAC-USA1	319	Printer Connection	55	714/758-8832
70-71	Apple	—	—	81-144	Mac Zone, The	70	800/248-0800	304	QMS	191	800-422-2769
11	Applied Engineering	167	800/554-MACS	339-348	Mac's Place	209	—	387	Quantum Leap Technologies	101	800/762-2877
176	Asante	24	800/662-9686	74	MacAcademy	106	800/527-1914	299	Quicktime CD	—	800/848-6645
183	Atelier Systems	216	800/800-0412	313	MacBest	—	800/530-5050	303	RasterOps	—	800/729-2656
145	Berkeley Systems	218	800-248-0800	58-65	MacConnection	—	800/800-3333	290	Salient	39	—
354-355	BottomLine Distribution	—	900/420-3636	334	MacDepot	144	800/222-2808	28	Scan Co	—	800-722-6263
20-21	Caere	162	800/535-SCAN	69	MacDirect	58	800/621-8467	247	Scitor Corporation	—	415/570-7700
14	Canon USA	110	800/221-3333	245	MacFriends	—	800/622-8804	317	Secure-It	239	—
314-315	Casady & Greene	32	800/359-4920	307	MacFriends	—	800/622-8804	40	Sigma Designs	128	800/845-8086
68	Checkmark Software	—	800/444-9922	77	Macintosh Services Directory	—	800/927-1200	41	Sigma Designs	176/276	800/845-8086
184	Chipsoft	—	800-487-8297	326-327	MacLand	40	800/888-8779	170	Sony Electronic Publishing	282	—
350-351	Club Mac	96	800/258-2650	358	MacNews	172	800/243-9383	39	Sophisticated Circuits	184	206/485-7979
78-79	Compaq Computer Corp.	174	800/345-1518	149-154	MacroMedia	—	800/248-4477	309	Spectrum Holobyte	214	510/522-3584
289	Compuserve	159	800-848-8199	359	Macs 4 Less	30	800/475-6227	336	Spin Peripherals	148	800-466-1200
271	Computer Associates	10	800/CALL-CAI	338	MacSource	48	800/285-2622	55	Statsoft	99	918/583-4149
172	Computer Associates	82	800/CALL-CAI	254-262	MacWarehouse	150	800/255-6227	392-393	Sumeria	—	—
75	Computer Care	73/76	800/950-2273	148	Macworld CD Ventures	283	800/845-1924	46	SuperMac	88	—
45	Contemporary Cybernetics	188	800/873-9000	174	Macworld CD Ventures	192	800/845-1924	277	Supra	—	—
54	Dantz Development	26	510/849-0293	175	Macworld Cd Ventures	194	800/845-1924	52	Symantec	—	800/343-4714
349	DGR Technologies	53	800/235-9748	182	Macworld CD Ventures	—	800/845-1924	302	T B S P	25	800/755-TBSP
318	Dr. Mac	177	800/825-6226	394	Macworld CD Ventures	195	800/845-1924	19	Techworks	131	800/685-3682
337	Educational Resources	28	800/624-2926	7	Mainstay	5	818/991-6540	293	Tektronix	143	800/835-6100
395	Educorp	157	800/843-9497	292	Mass Microsystems	207	800/522-7979	301	Texas Instruments	313	800/527-3500
28	Engineered Software	12	919/299-4843	310	Mass Microsystems	164	800-522-7979	332-333	Thirdwave Computing	156	800/284-0486
178-179	Expervision, Inc.	170	—	37	Mathsoft, Inc.	34	800/628-4223	317	Thought I Could	173	212/673-9724
324-325	Express Direct	81	800/535-3252	43	MAXA	182	800/788-MAXA	76	Trendsetter Software	—	800/825-1825
72	Extreme Systems	142	800/995-2334	243	MECA Software	—	800/288-6322	50	TwinCom	178	800/723-2962
273	Focus Enhancements	90	800/538-8866	249	MECA Software	—	800/288-6322	190-191	WordPerfect	—	800/526-7820
275	Focus Enhancements	89	800/538-8866	386	MediaMate	199	800/765-5669	388	World Expo Corp.	—	—
279	Frame	60	800/U4-FRAME	56	Microcom	41	919/490-1277	251	Xante Corp.	1	800/926-8839
285	GCC	262	800-422-7777	267	MicroNet	139	714/837-6033	253	Xante Corp.	2	800/926-8839
283	GCC Technologies	260	800/422-7777	22	MicroNet	113	714/837-6033	389	ZyXEL USA	107	800/255-4101
47	GDT Softworks	42	800/663-6222	IFC-01	Microsoft	—	800/541-1261				
390	General Parametrics	186	510-524-3950	48-49	Microsoft	—	—				
38	Graphsoft	46	410/461-9488	158-159	Microsoft	—	800-541-1261				
8-9	Hewlett Packard	—	—	161	Microsoft	—	800-541-1261				
156-157	Hewlett Packard	185	—	295	Microtek Lab, Inc.	146	800/654-4160				
168	Hewlett Packard	—	—	51	Mirror Technologies	122	800/643-0635				
286	ICOM Simulations	138/148	800/877-4266	IBC	Mirror Technologies	125	800/654-0633				
180	Image Club	—	800/661-9410	15	Mitsubishi Electronics	165	800-843-2515				
265	Insignia Solutions	72	800/848-7677	309	Multi Ad Services	126	800/447-1950				
269	Insignia Solutions	235	800/848-7677	2-3	NEC Technologies	68	800/NEC-INFO				
262	Iomega	240	800/777-6649	146-147	NEC Technologies	180	800/NEC-INFO				
BC	Kensington	—	800/535-4242	281	NEC Technologies	16	800/NEC-INFO				
				386	Nordic Software	168	402-488-5086				
				12-13	Now Software	49	800/237-3611				
				66	nView Corp.	117	800/736-8439				
				387	O.C.E.A.N. Microsystems	62	800/944-6232				
				298	Opcode Systems	280	415/369-8131				
				18	Orange Micro	33	714/779-2772				
				186	Outbound	23	800/444-4607				

**TURN TO THE MACWORLD
SHOPPER ON PAGE 360
TO FIND ADDITIONAL
ADVERTISERS**

FASTFACTS

JUST FOR YOU. FREE PRODUCT INFORMATION FROM MACWORLD.

There's no cost; no obligation. Simply fill out the form and circle the numbers on the card below for the products which interest you.

Mail the card. We pay the postage!

Numbers for advertised products can be found in the ad and in both the Product Index and the Advertiser Index.

Recycled Paper  Contains 10% Post Consumer Waste



Free Product Info

1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50

51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110
111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130
131 132 133 134 135 136 137 138 139 140
141 142 143 144 145 146 147 148 149 150

151 152 153 154 155 156 157 158 159 160
161 162 163 164 165 166 167 168 169 170
171 172 173 174 175 176 177 178 179 180
181 182 183 184 185 186 187 188 189 190
191 192 193 194 195 196 197 198 199 200

201 202 203 204 205 206 207 208 209 210
211 212 213 214 215 216 217 218 219 220
221 222 223 224 225 226 227 228 229 230
231 232 233 234 235 236 237 238 239 240
241 242 243 244 245 246 247 248 249 250

251 252 253 254 255 256 257 258 259 260
261 262 263 264 265 266 267 268 269 270
271 272 273 274 275 276 277 278 279 280
281 282 283 284 285 286 287 288 289 290
291 292 293 294 295 296 297 298 299 300

301 302 303 304 305 306 307 308 309 310
311 312 313 314 315 316 317 318 319 320
321 322 323 324 325 326 327 328 329 330
331 332 333 334 335 336 337 338 339 340
341 342 343 344 345 346 347 348 349 350

351 352 353 354 355 356 357 358 359 360
361 362 363 364 365 366 367 368 369 370
371 372 373 374 375 376 377 378 379 380
381 382 383 384 385 386 387 388 389 390
391 392 393 394 395 396 397 398 399 400

MACWORLD



Free Macworld Shopper Info

401 402 403 404 405 406 407 408 409 410
411 412 413 414 415 416 417 418 419 420
421 422 423 424 425 426 427 428 429 430
431 432 433 434 435 436 437 438 439 440
441 442 443 444 445 446 447 448 449 450

451 452 453 454 455 456 457 458 459 460
461 462 463 464 465 466 467 468 469 470
471 472 473 474 475 476 477 478 479 480
481 482 483 484 485 486 487 488 489 490
491 492 493 494 495 496 497 498 499 500

501 502 503 504 505 506 507 508 509 510
511 512 513 514 515 516 517 518 519 520
521 522 523 524 525 526 527 528 529 530
531 532 533 534 535 536 537 538 539 540
541 542 543 544 545 546 547 548 549 550

551 552 553 554 555 556 557 558 559 560
561 562 563 564 565 566 567 568 569 570
571 572 573 574 575 576 577 578 579 580
581 582 583 584 585 586 587 588 589 590
591 592 593 594 595 596 597 598 599 600

Please print or type all information

Name

Title

Co.

Address

City

State

Zip

Phone

Fax

☐ Check box and fill in the appropriate information to subscribe to Macworld. You will be billed \$24.95 for a 1-year (12 issue) subscription (U.S. only).

Expires February 22, 1993 S1 December 1992



Free Product Info

1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50

51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110
111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130
131 132 133 134 135 136 137 138 139 140
141 142 143 144 145 146 147 148 149 150

151 152 153 154 155 156 157 158 159 160
161 162 163 164 165 166 167 168 169 170
171 172 173 174 175 176 177 178 179 180
181 182 183 184 185 186 187 188 189 190
191 192 193 194 195 196 197 198 199 200

201 202 203 204 205 206 207 208 209 210
211 212 213 214 215 216 217 218 219 220
221 222 223 224 225 226 227 228 229 230
231 232 233 234 235 236 237 238 239 240
241 242 243 244 245 246 247 248 249 250

251 252 253 254 255 256 257 258 259 260
261 262 263 264 265 266 267 268 269 270
271 272 273 274 275 276 277 278 279 280
281 282 283 284 285 286 287 288 289 290
291 292 293 294 295 296 297 298 299 300

301 302 303 304 305 306 307 308 309 310
311 312 313 314 315 316 317 318 319 320
321 322 323 324 325 326 327 328 329 330
331 332 333 334 335 336 337 338 339 340
341 342 343 344 345 346 347 348 349 350

351 352 353 354 355 356 357 358 359 360
361 362 363 364 365 366 367 368 369 370
371 372 373 374 375 376 377 378 379 380
381 382 383 384 385 386 387 388 389 390
391 392 393 394 395 396 397 398 399 400

MACWORLD



Free Macworld Shopper Info

401 402 403 404 405 406 407 408 409 410
411 412 413 414 415 416 417 418 419 420
421 422 423 424 425 426 427 428 429 430
431 432 433 434 435 436 437 438 439 440
441 442 443 444 445 446 447 448 449 450

451 452 453 454 455 456 457 458 459 460
461 462 463 464 465 466 467 468 469 470
471 472 473 474 475 476 477 478 479 480
481 482 483 484 485 486 487 488 489 490
491 492 493 494 495 496 497 498 499 500

501 502 503 504 505 506 507 508 509 510
511 512 513 514 515 516 517 518 519 520
521 522 523 524 525 526 527 528 529 530
531 532 533 534 535 536 537 538 539 540
541 542 543 544 545 546 547 548 549 550

551 552 553 554 555 556 557 558 559 560
561 562 563 564 565 566 567 568 569 570
571 572 573 574 575 576 577 578 579 580
581 582 583 584 585 586 587 588 589 590
591 592 593 594 595 596 597 598 599 600

Please print or type all information

Name

Title

Co.

Address

City

State

Zip

Phone

Fax

☐ Check box and fill in the appropriate information to subscribe to Macworld. You will be billed \$24.95 for a 1-year (12 issue) subscription (U.S. only).

Expires February 22, 1993 S2 December 1992

FACTS, FAST!

FREE PRODUCT INFORMATION. Get valuable information about the products that interest you. There's no cost; no obligation. Just fill out this **FASTFACTS** Information form. Circle the numbers for the desired products.

Then mail the card. We pay the postage! For even faster results fill out and send the card via our **FASTFAX**.

Now fast...get the facts, the competition's gaining on you.

MACWORLD



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 215 PITTSFIELD, MA

POSTAGE WILL BE PAID BY ADDRESSEE

MACWORLD

Reader Service Department
P.O. Box 5299
Pittsfield, MA 01203-9906



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 215 PITTSFIELD, MA

POSTAGE WILL BE PAID BY ADDRESSEE

MACWORLD

Reader Service Department
P.O. Box 5299
Pittsfield, MA 01203-9906



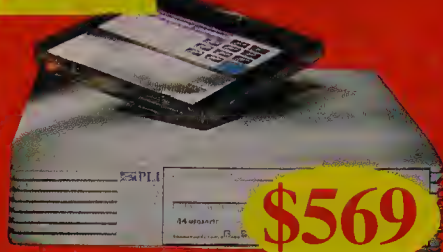
Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.									
SOFTWARE																				
BUSINESS																				
70-71	Apple	—	317	Secure-It	239	40	Sigma Designs	128	386	MediaMate	199387									
183	Atelier Systems	216				41	Sigma Designs	176/276		Plusware, Inc.	51									
68	Checkmark Software	—	STATISTICAL																	
289	Compuserve	159	55	Statsoft	99	EXPANSIONS/UPGRADES														
172	Computer Associates	82	UTILITIES																	
279	Frame	60	314-315	Casady & Greene	32	11	Applied Engineering	167	SERVICES											
286	ICOM Simulations	138/148	54	Dantz Development	26	72	Extreme Systems	142												
265	Insignia Solutions	72	47	GDT Softworks	42	51	Mirror Technologies	122	ON-LINE											
10	Logical Solutions	169	286	ICOM Simulations	138/148	253	Xante Corp.	2	289	Compuserve	159									
7	Mainstay	5	269	Insignia Solutions	235	HARD DISKS/STORAGE														
243	MECA Software	—	10	Logical Solutions	169	352-353	Alliance Peripheral Systems	31	TRADESHOWS/CONFERENCES											
249	MECA Software	—	43	MAXA	182	45	Contemporary Cybernetics	188	388	World Expo Corp.	—									
IFC	Microsoft	—	56	Microcom	41	349	DGR Technologies	53	TRAINING											
58-159	Microsoft	—	309	Multi Ad Services	126	285	GCC	262	74	MacAcademy	106									
161	Microsoft	—	12-13	Now Software	49	262	Iomega	240	ACCESSORIES											
44	Personal Training Systems	44	290	Salient	39	29-36	La Cie	—	FLOPPY DISKS/HOLDERS											
247	Scitor Corporation	—	317	Thought I Could	173	387	Liberty Systems	45	170	Sony Electronic Publishing	282									
55	Statsoft	99	VERTICAL																	
302	T B S P	25	302	T B S P	25	328-329	Mac Products USA	175	FURNITURE											
90-191	WordPerfect	—	MISCELLANEOUS									6		Anthro	—					
CAD/CAM																				
28	Engineered Software	12	178-179	Expervision, Inc.	170	326-327	MacLand	40	MISCELLANEOUS											
38	Graphsoft	46	47	GDT Softworks	42	292	Mass Microsystems	207	386	MediaMate	199									
37	Mathsoft, Inc.	34	298	Opcode Systems	280	310	Mass Microsystems	164	391	PORT	123									
CD ROM																				
148	Macworld CD Ventures	238	HARDWARE									MAIL ORDER								
174	Macworld CD Ventures	192	BOARDS									356-357	Advanced Business Center	227						
175	Macworld Cd Ventures	194	11	Applied Engineering	167	BC	Kensington	—	352-353	Alliance Peripheral Systems	31									
182	Macworld CD Ventures	—	176	Asante	24	387	Plusware, Inc.	51	354-355	BottomLine Distribution	—									
394	Macworld CD Ventures	195	75	Computer Care	73/76	39	Sophisticated Curcuits	184	350-351	Club Mac	96									
387	Quantum Leap Technologies	101	72	Extreme Systems	142	MODEMS						349	DGR Technologies	53						
299	Quicktime CD	—	51	Mirror Technologies	122	188	P.S.I. Integration Inc.	61	318	Dr. Mac	177									
92-393	Sumeria	—	18	Orange Micro	33	277	Supra	—	337	Educational Resources	28									
COMMUNICATION												50	TwinCom	178						
183	Atelier Systems	216	188	P.S.I. Integration Inc.	61	389	ZyXEL USA	107	395	Educop	157									
EDUCATIONAL												273	Focus Enhancements	90						
337	Educational Resources	28	46	SuperMac	88	NETWORKING						275	Focus Enhancements	89						
386	Nordic Software	168	19	Techworks	131	176	Asante	24	330-331	Mac and More	85									
44	Personal Training Systems	44	CD ROM									335	Mac Center	77						
ENTERTAINMENT												273	Focus Enhancements	90						
386	Nordic Software	168	387	Liberty Systems	45	275	Focus Enhancements	89	328-329	Mac Products USA	175									
309	Spectrum Holobyte	214	146-147	NEC Technologies	180	19	Techworks	131	81-144	Mac Zone, The	70									
FONTS												313	MacBest	—						
180	Image Club	—	COMPUTER SYSTEMS									339-348	Mac's Place	209						
GRAPHICS/DTP												58-65	MacConnection	—						
26	Adobe Systems	134	354-355	BottomLine Distribution	—	PRINTERS						334	MacDepot	144						
73	Aldus	—	324-325	Express Direct	81	78-79	Compaq Computer Corp.	174	326-327	MacLand	40									
271	Computer Associates	10	313	MacBest	—	283	GCC Technologies	260	358	MacNews	172									
279	Frame	60	307	MacFriends	—	156-157	Hewlett Packard	185	359	Macs 4 Less	30									
180	Image Club	—	245	MacFriends	—	8-9	Hewlett Packard	—	338	MacSource	48									
309	Multi Ad Services	126	359	Macs 4 Less	30	335	Mac Center	77	254-262	MacWarehouse	150									
MULTIMEDIA												281	NEC Technologies	16						
26	Adobe Systems	134	338	MacSource	48	319	Printer Connection	55	IBC	Mirror Technologies	125									
PERSONAL												303	RasterOps	—						
307	MacFriends	—	186	Outbound	23	293	Tektronix	143	319	Printer Connection	55									
245	MacFriends	—	DIGITIZERS/SCANNERS									336	Spin Peripherals	148						
243	MECA Software	—	20-21	Caere	162	301	Texas Instruments	313	332-333	Thirdwave Computing	156									
249	MECA Software	—	178-179	Expervision, Inc.	170	253	Xante Corp.	2												
												251	Xante Corp.	1						
												VIDEO								
												14	Canon USA	110						
												75	Computer Care	73/76						
												18	Orange Micro	33						
												46	SuperMac	88						
												MISCELLANEOUS								
												395	Educop	157						
												BC	Kensington	—						



Storage Devices

- FREE 2-year Warranty
- FREE Software & Utilities
- FREE Technical Support
- FREE Data Recovery

★★★★½



\$569

PLI Infinity 44 Removable
comes with cartridge
PLI Infinity 88 Removable \$699



★★★★

\$1,495

PLI Infinity Optical 3.5"
128MB on one 3.5" cartridge.
30-Year Warranty on cartridge!

PLI MiniArrays

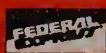
Lightning fast data transfer • Available in
240MB to 4GB capacities • Includes
Free QuickSCSI • Call for best pricing.

**WE CARRY THE FULL LINE OF
PLI STORAGE DEVICES**

**AUTHORIZED DIRECT PLI
RESELLER**

Easy Payment Options & Leasing Terms

We accept money orders, cashiers
checks and Visa/ MasterCard with no
surcharge and your card will not be charged
until product ships. Purchase orders are also
accepted for those who qualify. Leasing
terms available on
most products.



Apple/ Mac are trademarks of Apple Computer. Prices
subject to change without notice. Express Direct cannot
be held responsible for errors in typography or
photography. All returned orders will be subject to a
minimum 15% restocking fee plus return shipping. Call for
RMA before returning. All warranties on Macintosh or
Apple brand products sold by Express Direct will be
honored by Express Direct or its authorized agents only.
All other manufacturer's warranties still apply.

EXPRESS DIRECT
1-800-535-3252



E-MACHINES

Display Systems

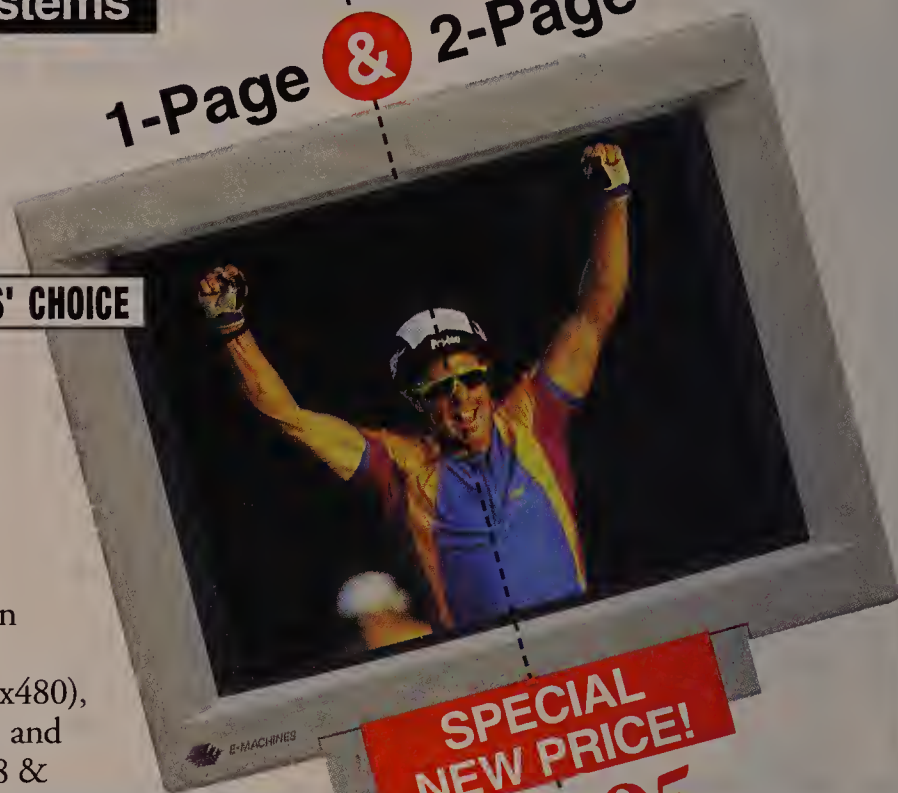
1-Page & 2-Page

MW EDITORS' CHOICE

"Excellent"
— MacWorld, Sept '92

E-Machines ColorPage T16 II

- 16" Sony Trinitron
- Four Resolutions:
- Presentation (640x480),
- 1-Page (832x624) and
- 2-Page (1024x768 &
1152x870) • Compatible with
Mac IIsi, IIfx & Quadra built-in
video



**SPECIAL
NEW PRICE!**
\$1,295

Quadra-Ready 19"

E-Machines T19 II

- 19" Dual-Mode Sony
Trinitron Display
- 1024 x 808 • 1152 x 870
- Compatible with Quadra built-in video

"Of the larger monitors, the E-Machines T19
...[was] the best." — MacWorld, Sept '92
(Large Screen Monitor Review)

\$2,395

New Color Cards

E-Machines Interface cards work with
virtually any display from 12" to 21"
including:

- Apple
- Radius
- RasterOps
- Sony
- & More

1 Card Fits All



**from only
\$399**

**#1 WORLDWIDE
RETAILER**

Nobody sells more E-Machines than Express
Direct. So nobody can give you better
advice, better support or a better price.

Mac Systems



**Mac IIsi
\$1,495
w/complete system**

- 3MB Ram, 40 MB Apple HD
- E-Machines T16 II - Award-winning 16"
Display with 256 colors • Apple Keyboard
- Complete System \$3,025



**Mac IIfx
\$2,195
w/complete system**

- 5MB Ram, 40 MB Apple HD • E-Machines
Award-winning 16" Display with 256 colors
- Apple Keyboard • Complete System \$3,925

Hi-Resolution, Hi-Speed Solutions!

newgen *The Hi-Res People*

Laser Printers



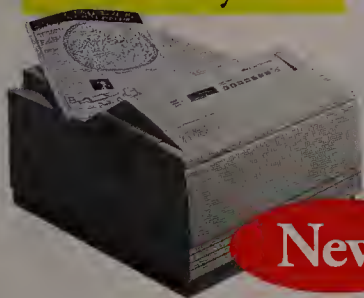
NewGen Turbo PS/300p Laser Printer

- Canon engine
- 300 dpi • 35 Fonts
- 16 MHz RISC PostScript processing
- 3MB RAM, expandable to 16MB RAM
- PC-Mac autoswitching

\$1,245

11"x17" Tabloid

Introductory Price!



New!

- NewGen Turbo PS/440 B • RISC • 8ppm**
- Prints Tabloid, A3, A4, Letter & Legal
 - Ethernet expandable • Canon engine
 - SCSI port • Ethernet expandable
 - PC-Mac autoswitching • 35 fonts • 6MB RAM

400 dpi

Call

- NewGen Turbo PS/400p • RISC Processor**
- Ethernet expandable • PC-Mac autoswitching
 - Canon engine • SCSI port • 4MB RAM • 35 fonts

600 dpi

\$2,895

- NewGen Turbo PS/660 • RISC Processor**
- Ethernet expandable • PC-Mac autoswitching
 - Canon engine • SCSI port • 6MB RAM • 35 fonts

800 dpi

\$3,695

- NewGen Turbo PS/880 • RISC Processor**
- SCSI & Ethernet ports • 12MB RAM • 35 fonts
 - PC-Mac autoswitching • Canon engine

AUTHORIZED DIRECT NEWGEN RESELLER

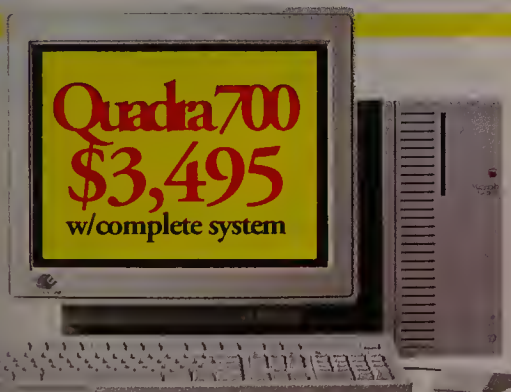
Custom Configurations

We carry all the Macs - from PowerBooks to Quadras • Let Us Tailor a System Perfect for You

The Express Advantage

With Express Direct you always get:

- Low Price & Fast Delivery
- Toll-Free Technical Support
- Prompt Customer Service
- Expert Advice & More



Quadra 700
\$3,495
w/complete system

- 4MB Ram, 105 MB Apple HD • E-Machines T16 II; 16" Display with 24-bit color • Apple Ext. Keyboard • NewGen 600dpi Laser Printer • UMax 600dpi Color Scanner • PLI 88MB Removable • Complete System \$9,595

UMAX®

Color Scanners

"...Umax produced the best images [and] boasts the highest vertical resolution...Umax excels in speed and color accuracy"

- MacUser, Dec '91



Special Price!



FREE
Calera WordScan
OCR Software
\$295 Value

Umax UC630 Color Scanner

- 600 dpi • 24-bits • Recognizes 16.8 colors
- Supports black/white & gray scale
- Includes Photoshop

"Umax's top-of-the-line scanner offers incomparable image reproduction with optimum speed"



\$2,795

1200 dpi

Umax 1200S Color Scanner

- pictured with optional transparency unit*
- 1200 dpi • One Pass design • 30-bits
 - Recognizes 1 billion colors • Supports black/white & gray scale • Includes Photoshop

Umax Transparency Option

User-installable option allows for high-resolution scanning of slides and film transparencies • Works with both the Umax UC630 & 1200S

Call

AUTHORIZED DIRECT UMAX RESELLER

Express Hours (central time):
M-F 8am-7pm; Sat 10am-2pm
24hr Fax, 7 days/week

1801 W. Larchmont Ave.
Chicago, IL 60613 USA 312.549.0030

800-535-3252

International Orders Shipped Daily
FAX 312.549.6447

**EXPRESS
DIRECT**

"The Mac Systems Company"

Circle 81 on reader service card

Hard Drives



MacLand Hard Drives Quantum

TWO YEAR WARRANTY!

INTERNAL

42MB	\$199
85MB	\$299
105MB	\$339
127MB	\$359
170MB	\$399
240MB	\$599
425MB	\$899

EXTERNAL

42MB	\$279
85MB	\$379
105MB	\$389
127MB	\$429
170MB	\$479
240MB	\$679
425MB	\$999

All MacLand Drives are pre-tested, pre-formatted, and come complete with our own installation and reference manual, DiskMaster Plus™ formatting and utility software, cables and two-year warranty. Internal hard drives also include bracket kits to fit your particular Mac.



Syquest Drives are the recipient of MacUser Magazine's prestigious Editors' Choice Award

SyQuest

All MacLand Removable Hard Drives come with our own installation and reference manual, DiskMaster Plus™ formatting utility software, cables, and a one-year warranty. Cartridge not included.

44 Megabyte Hard Drives \$399

Cartridges:

100 Pak-ea.

\$60

10 Pak-ea.

\$62

5 Pak-ea.

\$63

Singles

\$64



88 Megabyte Hard Drives \$449

Cartridges:

100 Pak-ea.

\$90

10 Pak-ea.

\$92

5 Pak-ea.

\$95

Singles

\$97



Removable Hard Drives

Monitors



Sony Monitors

1320

\$399

1304

\$599



Orion MacScan Ultra

\$349

One-Year Warranty



Magnavox

\$429

Two-Year Warranty



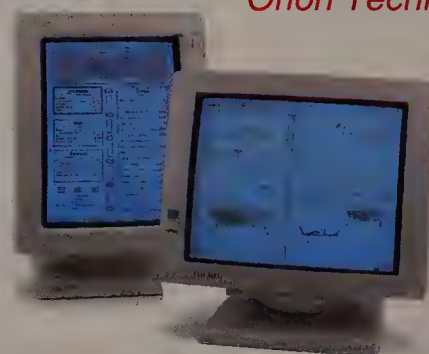
MacLand

\$399

Two-Year Warranty

Monochrome Monitor Specials

Orion Technologies



Complete Page Display

\$329

Dual Page Display

\$699

One Year Warranty

Videos

**MacAcademy
Video
Training
Tapes**

4th Dimension
Accountant Inc.
Canvas 3.0
ClarisWorks
Design & Layout
Dollars & Sense
Excel 3.0
Excel 4.0
FileMaker Pro 1.0
FileMaker Pro 2.0

Font Management
Freehand 3.1
Hypercard 2.0
Illustrator 3.2
Lotus 1-2-3
MacDrawPro 1.0
MacProject II 2.5
MacWrite II
Macintosh 6.0
Macintosh 7.0

MacroMind Director
Microsoft Works
Networking Small
Pagemaker 4.2
Paints & Draws
Persuasion 2.0
Photoshop 2.0
Powerpoint 2.0
QuarkXPress 3.1
Quicken 3.0

Resolve
Superpaint 3.0
System 7
Utilities, CDEV'S & Inits
Wingz 1.1
Word 5.0
WordPerfect

**\$39
each**



LZR 1560™
\$3,195

- 11" X 17"
- 300 or True 400 Dots-Per-Inch Resolution
- Postscript Level 2
- 15 Pages Per Minute
- RISC-Based Controller



MacUser Magazine
★★★★½



LZR™ 960
\$1,695

- Smallest Footprint
- Powerful RISC-Based Processor
- PostScript Level 2
- "Getting Started" Video Tape

**Qume
CrystalPrint
Express**

**Only
\$1,999**



The Express is backed by a full one-year manufacturer's warranty and MacLand's exclusive 30 day money back guarantee.

- Fast 12 Pages Per Minute
- Legal, Letter, Envelopes and Transparencies
- 3 Megabytes of Ram
- Dual Paper Trays
- 600 x 300 DPI
- 39 Resident Fonts



LZR 965™
\$2,395

- 8 Megs of Ram
- Postscript Level 2
- Powerful RISC-Based Processor
- 2-Year Warranty

NEW!

MacLand®

◀ Super View LCD
Grayscale Projection
Panel



\$1395

16 Shades of Black and White

The most advanced grayscale LCD panel on the market today. Best of all, its affordable.

Super View LCD
Color Active Matrix
Projection Panel ▶



\$4995

262,144 True Colors

High speed active matrix LCD panel which can display up to 262,144 true colors! Run QuickTime™ video presentations from your computer or directly connect your VCR.

Microtek

NEW!

ScanMaker II **\$899**

ScanMaker IIxe **\$1199**

**Introducing the
MLi Cordless
Supermouse!**

- Cordless Design
- Pin Point Accuracy
- 400 Dots Per Inch
- Uses Less Desktop Space

Limited Time Offer!

From now until Dec. 31, 1992 you can purchase the MLI Cordless Supermouse and Symantec's Norton Utilities for **ONLY \$129!**

Just
\$79



Call Us

For Pre-Owned Macintosh Systems!

Circle 40 on reader service card

Product names are trademarks or registered trademarks of their respective holders.

**AIRBORNE
EXPRESS.**

C.O.D. is payable with Cashier's Check or Money Order.
All shipments made by Airborne Express standard Air which is 1-2 day service. Call for shipping costs. Products purchased in error are subject to 20% restocking fee. All prices subject to change without notice. All products subject to availability.

4685 S. Ash/Tempe, AZ 85282 (602) 820-5802

24 HR. FAX: (602) 345-2217



1-800-888-8779

ATTENTION: BUSINESSES, GOVERNMENT, EDUCATIONAL INST., MILITARY
• Pay us your P.O. for same day shipment! • P.O.'s accepted on approved accounts. • All shipments are FOB origin. • Prices do not include freight. • Favorable terms offered to established accounts. • LEASING option available. Call for details and pricing!

MAGIC HARD WORKING TOOLS FOR YOUR MACINTOSH

INTERNAL, EXTERNAL, REMOVABLE,
OPTICAL, TAPE BACKUP, FLOPTICAL,
AND CUSTOM CONFIGURATIONS

QUANTUM, SEAGATE, FUJITSU, MOST,
TOSHIBA, EPSON, MAXTOR, CONNER,
DEC, HEWLETT PACKARD & MORE!

MACPRODUCTS HAS BEEN CONTINUOUSLY
SHIPPING MACINTOSH DRIVES LONGER
THAN ANY OTHER COMPANY!

ALL MAGIC DRIVES INCLUDE A 1, 2, 3, OR 5 YEAR WARRAN-
TY & THE MAGIC 30-DAY MONEY-BACK GUARANTEE.

ALL MAGIC EXTERNAL DRIVES INCLUDE CASE WITH 40
WATT POWER SUPPLY, CABLES, & DRIVER SOFTWARE.



FWB HARD DISK TOOLKIT-PE BUNDLED WITH MAGIC HARD DRIVES

MAGIC 45R SYQUEST REMOVABLE

"THE MAGIC 45R IS ONE OF BEST SYQUEST
DRIVES AVAILABLE, OFFERING HIGH SPEED AND
HIGH QUALITY" -MACUSER MAGAZINE JULY '90

MAGIC 128REM 3.5" OPTICAL

"THE BEST DESIGN & CONSTRUCTION FOR THE
MONEY" -MACUSER MAGAZINE, JULY 1992

WINNER OF THE 1992
MACWORLD MAGAZINE
EDITOR'S CHOICE AWARD!
-NOVEMBER 1992

MACWORLD



MAGIC DRIVE KITS:

Economy
Internal Kit \$29

FWB ToolKit
Internal Kit \$49

External Kit \$99



* 1 YEAR WARRANTY
** 2 YEAR WARRANTY
† 3 YEAR WARRANTY
†† 5 YEAR WARRANTY

MAGIC HARD DRIVES

MAGIC HARD DRIVES

40MB Hard Drive*	\$175
52MB Quantum LP**	\$219
105/120MB Quantum LP**	\$329/\$359
Go 120MB Quantum**	\$549
240/425MB Quantum**	\$599/\$999
425/520MB Fujitsu*	\$1049/\$1149
830MB Toshiba†	\$1299
Magic 1.2GB Seagate††	\$1999
Magic 1.5GB Micropolis††	\$2099
Magic 2.1GB Seagate††	\$2799

MAGIC 256/128 OPTICAL

3.5" Optical Disk Included With All Magic Optical Drives	
Magic 256MB REM MOST Optical*	\$1699
Magic 128MB Turbo Epson Optical*	\$1299
Magic 128MB REM MOST Optical*	\$1199
Magic 256/128MB 3.5" Cartridges.....	\$99/\$59

MAGIC 45R & 88R

Magic 45R/88R SyQuest Drive**	\$449/\$499
SyQuest 45 & 88 Cartridges	\$69/\$119

MAGIC TAPE

Tape Included With All Magic Tape Backup Drives	
Magic 150/250MB Tape Backup*	\$599
Magic 525/600MB Tape Backup*	\$999
Magic 2.0/10GB DAT Backup*	\$1499/\$1299
Magic 2.3/5.0GB 8mm Backup*	\$2895/\$3799

MAGIC CD-ROM

Magic Toshiba CD-ROM (XM3301)	\$549
Magic NEC CD-ROM (CDR74)	\$699

SCSI ACCELERATOR

Magic SCSI II & Mirror Card	\$299
Magic SCSI II Cable	\$49

MAGIC COMMUNICATIONS

MAGIC NETWORKING

MagicNet singles	\$14
MagicNet 10-pack, ea.	\$9

MAGIC FAXMODEMS

MAGIC AFX & PKT FAXMODEMS

2400bps modem. 9600/4800bps, class 1, Group 2
& 3 fax, software\$89, pocket version \$119

MAGIC FX FAXMODEM

2400bps modem. 9600bps send & receive, class 2,
Group 3 fax, software.....\$139

MAGIC VFX FAXMODEM

2400bps modem. 9600bps, class 2, Group 3 fax,
V.42bis & MNP5, software\$189

MAGIC VFX V.32BIS FAXMODEM

14400bps modem. 14400bps, class 2, Group 3 fax,
V.42bis/V.32bis & MNP5, software\$289

MAGIC MODEMS

MAGIC AMX MODEM

2400bps modem. 100% Hayes compatible.....\$69

MAGIC VX MODEM

2400bps modem with compression to 9600bps.
Hardware V.42bis & MNP5\$139

MAGIC VX V.32 MODEM

9600bps modem with compression to 38400bps.
Hardware V.32/V.42bis & MNP5\$199

MAGIC VX V.32BIS MODEM

14400bps modem with compression to 57600bps.
Hardware V.32bis/V.42bis & MNP5. Includes
software and cable.....\$259



ALL MAGIC MODEMS INCLUDE
2 YEAR WARRANTY AND 30
DAY MONEY BACK GUARANTEE



NEW!

MAGIC AFX-24/96
POWERBOOK FAXMODEM
MOUNTS INTERNALLY IN ANY MACINTOSH
POWERBOOK, GROUP 3, CLASS 1 FAX

\$179

EXTERNAL

2400 BAUD

9600 BAUD

& 14400 BAUD

MODEMS &

FAXMODEMS

ADVANCED V.42BIS,
V.32BIS & MNP 5
ERROR CHECKING &
DATA COMPRESSION
CAPABILITIES

LEASE

LEASE A COMPLETE
MACINTOSH SYSTEM AT
AFFORDABLE RATES.
CALL FOR DETAILS.

**MAGIC RAILGUN 030
ACCELERATORS FOR
MAC SE, PLUS &
CLASSIC.**

**ACCELERATORS AVAILABLE
WITH BUILT-IN LARGE
SCREEN VIDEO OUTPUT**

**MAGIC PERFORMANCE
UPGRADES FOR THE
MAC LC, IIsi, IICI,
CLASSIC II & SCSI**



**INCREDIBLE PERFORMANCE FROM
YOUR MAC SE, PLUS & CLASSIC**

RAILGUN™ 030 SYSTEM V.S. MOBIUS 030

HARDWARE FEATURES	RAILGUN 030 PRO SYSTEM WITH 19" DISPLAY	MOBIUS 030 SYSTEM WITH 19" DISPLAY
CPU SUPPORT	SE, CLASSIC, PLUS	SE, CLASSIC
PROCESSOR	25MHZ MOTOROLA 68030	25MHZ MOTOROLA EC68030
MATH FPU	68882 BUILT-IN	NOT INCLUDED
PMMU	BUILT INTO 68030	NOT INCLUDED
VIDEO PATH	32-BIT	16-BIT
VIDEO CLOCK	16, 25, 33, & 40MHZ	8MHZ
MONITOR RES.	1152 x 876	1024 x 768
VIDEO SUPPORT	ALL 3RD PARTIES	ONLY MOBIUS DISPLAYS
VIRTUAL RAM	USING VIRTUAL 3.0	NOT AVAILABLE
RAM SUPPORT	UP TO 16MB	UP TO 4MB
BASE PRICE	\$999	\$1099



**RAILGUN 030 PRO
SYSTEM**

030 Accelerators with Built-in Video Output,
68882 Math CoProcessor, PMMU, &
Panasonic Display for your Macintosh SE, Plus,
or Classic *

System Monitor19" 15"
16MHz RailGun PRO\$899\$699
25MHz RailGun PRO\$999\$849
33MHz RailGun PRO **\$1199\$999

*Add \$99 for Classic or Plus Version

** 33MHz version includes Virtual 3.0

RAILGUN 030

030 Accelerators for your Macintosh SE, Plus,
or Classic. Optional 68881/2 Math FPU, Built-in
SCSI accelerator. Easy user installable design!

Magic RailGun 16MHz\$399
Magic RailGun 25MHz\$499
▶ Magic RailGun 33MHz\$599
Math CoProcessor Upgrade.....\$49
▶ Virtual 3.0 Virtual RAM software\$99

MAGIC ACCELERATORS

The Magic Math 030 adds System 7 Virtual
memory capabilities and built-in math coprocessor to
your Macintosh LC & Classic II.

Magic LC 030 with CoProcessor.....\$199
Magic Math LC CoProcessor.....\$59
Magic Math Classic II CoProcessor.....\$59
Magic IIsi Dual Slot Card with FPU.....\$99
Magic Cache IICI / IIsi 64k.....\$169

MAGIC MEMORY UPGRADES

MAGIC HARD WORKING TOOLS FOR YOUR MACINTOSH

MAGIC MEMORY

Each Magic Memory Upgrade is backed by the
Magic Lifetime Guarantee. Magic SIMMs are
made of the highest quality components and
designed specifically for your hardware.

**1MB SIMMs \$26
4MB SIMMs \$99**

MACINTOSH RAM

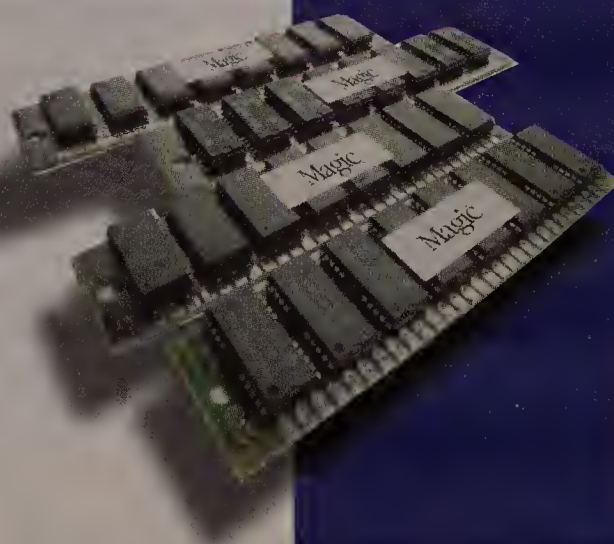
1MB SIMMs Starting at \$26
2MB SIMMs\$55
4MB SIMMs for IIsi, IICI, Quadra\$99
16MB SIMMs\$479
2/4/6MB PowerBook.....\$99/\$179/\$239
4MB Classic Upgrade\$99
LC VRAM.....\$69
Quadra VRAM\$29

**1MB TI RAM \$49
2MB NEC \$159**

PRINTER RAM

GCC PLP II/S 1MB.....\$49
LZR960/Realtech/Quickor 8MB Kit\$499
NEC Silentwriter 2 M90 2MB Upgrade.....\$249
NEC Silentwriter Model 95 2MB\$159
QMS PS-410/815 4MB Upgrade.....\$239/\$349
TI 1MB RAM Upgrade\$49
TI Turbo 4MB RAM Upgrade\$399

Circle 175 on reader service card



**A COMPLETE LINE OF
MEMORY UPGRADES
FOR MACINTOSH
COMPUTERS
PRINTERS
& ACCELERATORS**

**ALL MAGIC MEMORY
UPGRADES INCLUDE
A FULL LIFETIME
WARRANTY**



PRODUCTS USA

HARD WORKING SINCE 1985

1 800 622 8721



FAX 512-499-0888
TEL 512-472-8881
SINGAPORE 65-287-5181
MALAYSIA TEL 603-734-7330
CUSTOMER SERVICE
TECHNICAL SUPPORT

608 WEST 22ND
AUSTIN, TEXAS 78705
CANADA 800-624-9307
FAX 603-736-4295
512-472-8881 EXT 631
512-472-8881 EXT 628

TERMS & CONDITIONS:

Corporate, Educational purchase orders accepted.
Returns subject to a restocking fee. Call for and RMA # before
returning merchandise. International orders welcome. Magic
Includes a 30-Day Money Back Guarantee on all Magic™
Products -Excluding Original Shipping. Prices subject to change..



Your Mail Order SuperStore™

Mon - Friday	Saturday*	Sunday*	Eastern and Mountain *East Coast Only
9:00 - 9:00	9:00 - 5:00	12:00 - 5:00	

CPU's and More...

Free 1200 Baud Hayes Modem!

Buy any Apple system and a monitor from Mac and MORE and we'll give you a modem. But supplies are limited; sorry no back orders are available!!!

If it is something as simple as a Macintosh LCII with extra memory or a fully loaded Quadra 700, your dream CPU is only a phone call away. We have every model in the Macintosh line from the PowerBook 145, the Quadra 950 and even the latest models just announced. Call us and find out what we mean!

Mac Classic II 4/40	\$1059
Macintosh LC II 4/80	\$1299
Macintosh IIsi 3/40	\$1579
Macintosh IIfx 5/0	\$2379
Mac Quadra 700 4/0	\$3699
Mac Quadra 950 8/0	\$5599
PowerBook 145 4/40	\$2299
PowerBook 170 4/80	\$3799

Keyboards and More...

ETC PowerGlide 105 Ext. KeyBoard	\$99.00
(Foreign Languages also available) 30 day return policy!	
Apple Ext. Keyboard w/CPU Purchase	\$170.00
Apple Std. Keyboard	\$99.00

800-945-1MAC East Coast

813-886-9534 International
813-888-9535 Corp. Fax
800-945-TECH Tech Support



Video and More...

Apple 12" Monochrome Monitor	\$239.00
Apple 12" RGB Monitor	\$439.00
Apple 13" RGB Monitor w/CPU Purchase	\$649.00
Apple 16" RGB Monitor	\$1279.00
Apple 21" Color Monitor	\$3579.00
Sony 14" Trinitron RGB	\$659.00

High-end Video and More...

RasterOps

20T Multi-Scan	
with RasterOps 8XLi	\$3659.00
20" Hitachi Color Systems	
with RasterOps 8XL	\$2469.00
21" Hitachi Color Systems	
with RasterOps 8XL	\$3199.00

radius

Full Page Display Monitor	\$599.00
Two-Page Display Monitor	\$929.00
Color Pivot LE Monitor	\$875.00
Color Pivot Monitor	\$1299.00
Precision Color 19" Monitor	

Networks and More...

Asanté FriendlyNet Media Adapters	\$89.00
Asanté FriendlyNet Cards	\$219.00
Asanté MacCon+ 16K Cards	\$199.00
Asanté MacCon+ 64K Cards	\$259.00
Asanté 10T Hub	\$679.00

SIMMS and More...

PwrBk 2Mb	\$165.00	1x8 SIMM	\$30.00
PwrBk 4Mb	\$295.00	4x8 SIMM	\$109.00
PwrBk 6Mb	\$379.00	16x8 SIMM	\$639.00

800-846-4MAC West Coast

303-447-2732 International
303-447-3973 Corp. Fax

International Toll Free Fax Lines

Australia	France
0014-800-128-806	05-90-0581
Germany	Netherlands
0130-8-16024	06-022-2383
Spain	Portugal
900-94-1460	0501-8-12-198
Switzerland	U K
155-9891	0800-89-9047

Printers and More...

Portable Printers	
Kodak Diconix M150 Printer	CALL
QuickDraw	
Apple ImageWriter II	\$429.00
HP DeskWriter w/ AppleTalk	\$429.00
HP DeskWriter C w/ AppleTalk	\$699.00
TrueType	
Apple StyleWriter	\$359.00
Apple Personal LaserWriter LS	\$899.00
Microtek TrueLaser	\$1395.00
PostScript	
Apple Personal LaserWriter NTR	\$1699.00
Apple LaserWriter IIf	\$2649.00
Apple LaserWriter IIfg	\$3429.00
QMS PS-410	\$1499.00
ETC DataBeam TCP	\$4495.00
...we also carry the full line of GCC products!	

Removables and More...

ETC 45R SyQuest Removable*	\$399
ETC 88R SyQuest Removable*	\$499
MacUsers four mice winner!	
*Includes one cartridge for each mechanism	
ETC Dual 45R/88R SyQuest*	\$899
Also available; the ETC 44R Dual and 88R Dual drives.	
45 & 88 Mb SyQuest Cartridge	\$64/\$99
45 & 88 Mb Cartridge 3-Pack	\$186/\$291

All ETC products have a 30 day return policy!

800-846-4MAC Canada

416-921-2321 International
416-921-4280 Corp. Fax
813-884-7466 BBS On-Line



Hard Drives...

Maxtor® FUJITSU

Quantum Seagate

Maxtor	Internal	External
All capacities available	CALL	CALL
Quantum, Toshiba		
ETC 42 Mb ELS	\$199.00	\$279.00
ETC 85 Mb ELS	\$299.00	\$369.00
ETC 127 Mb ELS	\$349.00	\$409.00
ETC 170 Mb ELS	\$409.00	\$469.00
ETC 80 Mb for PowerBook	\$449.00	
ETC 120 Mb for PowerBook	\$539.00	
Seagate		
ETC 307 Mb WREN-4	\$1129.00*	\$1279.00
ETC 337 Mb WREN-Runner-1	\$1279.00*	\$1429.00
ETC 613 Mb WREN-5	\$1349.00*	\$1499.00
ETC 676 Mb WREN-6	\$1399.00*	\$1549.00
ETC 676 Mb WREN-Runner-2	\$1649.00*	\$1799.00
ETC 1.2 Gb 15ms	\$1899.00*	\$2049.00
ETC 1.7 Gb 15ms	\$2399.00*	\$2549.00
Fujitsu		
ETC 330 Mb 3.5" HH	CALL	CALL
ETC 425 Mb 3.5" HH	\$965.00	\$1029.00
ETC 520 Mb 3.5" HH	\$1185.00	\$1249.00
ETC 778 Mb 5.25" FH	\$1249.00	\$1349.00
ETC 1.2 Gb 5.25" FH	\$1685.00	\$1789.00
ETC 1.7 Gb 5.25" FH	\$2885.00	\$2989.00
Hewlett Packard		
HP 402 Mb	\$1179.00	\$1279.00
HP 633 Mb	\$1409.00	\$1509.00
HP 1.0 Gb	\$1989.00	\$2089.00
HP 1.6 Gb	\$2439.00	\$2539.00
HP 2.0 Gb	\$3599.00	\$3699.00

*The drives above can be used in the Mac II, IIfx, & 9



813-886-9534
813-888-9535 fax

Consulting Services

Systems Consulting

Whatever your needs, Mac and MORE Consulting Services can design and implement a complete solution for your organization. We can work with your company, so that you get the most out of your investment. We can design and install a complete solution for your business, and train your employees to suit your business needs. We don't just provide a generic solution; we custom tailor a complete package to suit your needs. Call us today for details!

Out of Warranty Repair

Our technical staff knows computer equipment down to each individual component, and this kind of expertise allows us to provide clients with quick turnaround, and exceptional reliability, without breaking corporate budgets. We're a fully authorized service center on dozens of major brands of computers and peripherals, so you can rest assured your equipment is in the hands of some of the most qualified technicians in the computer industry.

Equipment Trade-Ins

Is it time to upgrade your system to something more powerful? Do you have an extra Macintosh lying around? Mac and MORE Consulting Services accepts equipment trade-ins. Why tie up thousands of dollars in outdated equipment, when your existing investment could help purchase the new system you need? Our trade-in policy provides clients with a way to get the most from their investment.

Our technicians have successfully finished the Macintosh Service Course.

- systems consulting
- out-of-warranty repair
- equipment trade-ins

We do custom configurations!

Desktop Publishing •
Prepress • Multi-Media •
Software Development • and
much more...

Extended Service Warranty for your Macintosh



- 12 month Warranty on Apple Products
- Next Day Shipping Both ways
- Unlimited 800 Technical Support



- 24 month Warranty on Apple Products
- 72 hour repair/replace in-house
- Shipping via Federal Express both ways

Terms and Conditions: Payment: Mac and MORE accepts Visa, MasterCard, Discover, C.O.D.s, and Purchase Orders. C.O.D.s are shipped Cash/Certified Check up to \$10,000. Corporate and School Purchase Orders are Net-15 for orders over \$2500 only, and are subject to credit approval. Warranties: All warranties on Macintosh and Apple brand products sold by Mac and MORE will be honored by Mac and MORE or its authorized agents only. Mac and MORE does not guarantee compatibility. Like all other Mail-Order resellers, Mac and MORE is not an authorized Apple reseller. All other manufacturers warranties are honored by Mac and MORE and the original manufacturer. Returns: All orders returned or refused will be charged a minimum 15% restocking fee. Call for an RTS before returning. Returns must be in original packaging with software seals unbroken. Shipping: For advertised items totaling over \$2500 we will ship to destinations in the continental US at no charge. Some items may not be included in this offer. Ask for details when ordering. Terms, Conditions, and Prices are subject to change without notice or obligation. All products sold by Mac and MORE are new. We do not sell used equipment. © 1992 Mac and MORE, Inc. All rights reserved. 920511.1



Your MailOrder SuperStore



We carry over 2,500 Macintosh items. If you don't see it just ask!

ETC DataFlow Interface Cards

The ETC DataFlow family of Ethernet Interface Cards for the Mac are designed to meet your networking needs. Each card provides accurate, high-speed data transfer with 64K of on-board RAM. Plug em in and go!

ETC DataFlow II thick & thin	\$140.00
ETC DataFlow II thick & T	\$140.00
ETC DataFlow II combo3	\$199.00
ETC DataFlow II si/SE combo3	\$199.00
ETC DataFlow II LC thin & T	\$199.00

UMAX UC 1200S Color Scanner

Photos, pictures, graphic art, and even transparencies can now be scanned quickly and efficiently with the highest resolution scanner on the market. UC 630 600 dpi Color Scanner

\$1179.00
Transparency Option \$699.00

ETC DataBeam TCP Thermal Printer

ETC Peripherals' DataBeam TCP Color Printer is a fast and extremely powerful color graphics printer at an extremely affordable price.

ETC PowerGlide 105 Extended Keyboard

- Features:
- 105-key extended keyboard layout with full cursor control; 15 function keys; and numeric keypad.
 - Foreign Language keyboards are also available.

SUPERMAC™ SuperMatch17" Multimode

With 17" large screen, 17" WYSIWYG, and magnified work spaces for managing and presenting information, the SuperMatch 17 represents an outstanding value.

ThunderStorm

SuperMacs latest achievement in combining affordability and performance in the Thunder Family has revolutionized acceleration with Adobe Photoshop to give you a result of up to 2,300 percent production increase.

Spectrum 24 PQ Plus	\$1829.00
Thunder 24	\$2699.00
SuperMatch 20" Monitor	\$1529.00
SuperMatch 20-T Monitor	\$2499.00



ETC DataPress

The ETC DataPress is the first "smart" peripherals SCSI data compression interface designed to work external of the Macintosh. The DataPress features "Real-time" data compression and allows seven additional SCSI devices to be added to your Macintosh. The DataPress won't interfere with virtual memory and can be added to the ETC DataPort Family of removable cartridge drives. On average, the ETC DataPress doubles the capacity of your drive. It can compress some files as high as 15-to-1. If you need lots of disk space, adding a DataPress to your Mac system is less expensive than adding another hard disk!



FastCache 040 Quadra Card

DayStar's FastCache 040 provides a 128K zero wait-state Static RAM cache. Instead of relatively slow DRAM, the FastCache 040 allows the Quadras to run at maximum speed.

33 MHz Power Cache	\$559.00	50 MHz Power Cache	\$1119.00
33MHz w/Coprocessor	\$689.00	50 MHz w/Co-processor	\$1379.00
40 MHz Power Cache	\$775.00	Quadra Cache for 700 & 900	\$289.00
40 Mhz w/Co-processor	\$949.00	Quadra Cache - all Quadras	\$399.00

Applied Engineering "Plus" Drive

The Applied Engineering "Plus" Drive is a 100% FOHD compatible drive for any Macintosh computer including the Plus, SE and Mac II Family. You can read and write to 1.44 Mb and 800K Mac disk as well as MS/DOS disk. The "Plus" Drive installs through the floppy connector and requires no SWIM chip upgrade.

QuadraLink	\$199.00	PowerBook Battery Charger	\$135.00
FastMath LC II	\$99.00	Auto Adapter	\$69.00

TEXAS INSTRUMENTS



microLaser XL

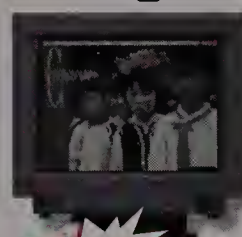
The new 16 ppm microLaser XL from TI is specially designed to handle the demands of high volume printing, for desktop publishing, graphics, and multi-documents in business and large group environments.

microLaser Turbo XL

The new 9 ppm microLaser XL Turbo from TI is a risc based printer, therefore allowing quicker response from the time of command. The microLaser Turbo XL is designed to handle the demands of high volume printing.

TI microLaser XL	\$2149.00	TI microLaser Turbo XL	\$2799.00
TI PS17 w/AppleTalk	\$1289.00	1 Mb memory expansion	\$79.00
TI PS35 w/AppleTalk	\$1399.00	TI Starter Package	\$ 129.00

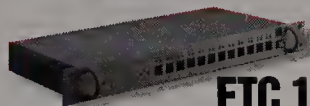
E-MACHINES



E-Machines T16 II Monitor

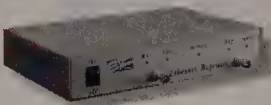
Why settle for less when performance is on the line. The new T16 II monitor uses the Sony Trinitron which allows outstanding clarity. The E-Machines T16 II also gives you the flexibility and productivity of four display resolutions.

E-Machines T19II	\$2299.00
Futura SX Video Board	\$489.00
Futura MX Video Board	\$815.00
Futura LX Video Board	\$1029.00



ETC 10BaseT Base

The ETC 10BaseT provides twelve UTP ports, via RJ-45 modular jacks for connection to network interface cards. On-board transceiver, provides diagnostic LED for each UTP ports, two sets of switchable BNC/AUI port, five status LEDs indicate repeater link and performs full multi-port repeater functions specified in IEEE 802.3 standard.



ETC Repeater

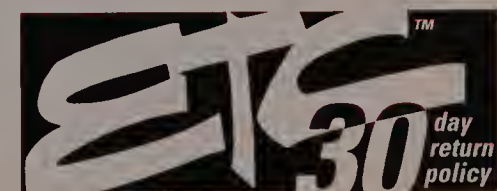
The ETC Repeater performs full multiport repeater functions including preamble regeneration and fragment extension meeting the IEEE 802.3 standard. Each port of the repeater can accept either a BNC or AUI connection.



SII Seiko Instruments CM1445 Monitor

The CM1445 for Apple Macintosh computers displays colors so bright, it adds power to everything from scanned-in images to drawn out design images.

Seiko CM1760LR 16" Color Trinitron	\$1249.00
Seiko CM2050 19" Color Trinitron	CALL



All products from ETC Peripherals include a 30-day return privilege. If for any reason you are not completely satisfied with any ETC product you may return it for credit, exchange or a refund ... your choice. All products must be returned freight prepaid with their original packing material cartons and be in "like-new" condition including all original packaging material, manuals and registration cards. Call our Customer Service department for complete details and an RTS # prior to its return.

THIRD WAVE SELLS ALL MODELS OF MACS!

**BEST
PRICES!**

QUADRAS — POWERBOOKS



**CALL FOR PRICING
ON ALL MODELS OF
MACINTOSH CPUs**

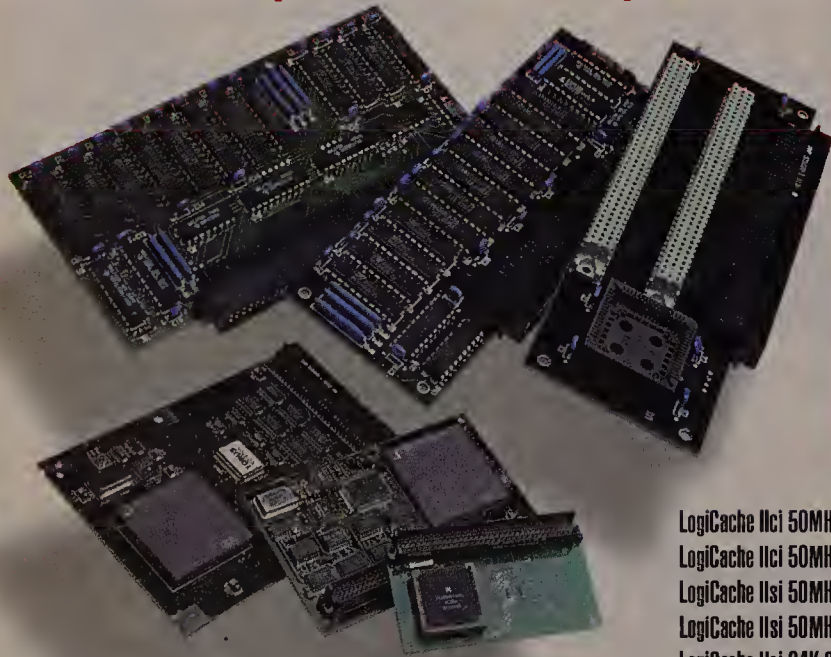
We can help you design your
entire system. Just give one of
our sales consultants a call.

*5 Year Warranty
Rated Number One by MacUser*

ASANTÉ ETHERNET FROM \$169

NuBus or IIsi/SE 30 Thick/Thin or Thick/10T	169.00
NuBus or IIsi/SE 30 Thick/Thin/10T	229.00
LC Thin or LC 10T	169.00
LC Thin/10T	229.00
SE Thick/Thin	169.00
SE Thick/10T	169.00
SE Thick/Thin/10T	229.00
FriendlyNet LC or NuBus (w/Thick/Thin/10T Adapter)	229.00
FriendlyNet IIsi (w/Thick/Thin/10T Adapter)	249.00
FriendlyNet Adapters Thick/Thin/10T	89.00
SCSI EtherNet 10T	399.00
SCSI EtherNet 10T (PowerBook)	449.00
SCSI EtherNet Thick/Thin/10T	499.00
SCSI EtherNet Thick/Thin/10T (PowerBook)	549.00
Asante AUI to 10T Adapter	89.00
AsanteHub 1012	529.00
AsanteHub 1700 or 1900 Series	CALL
Asante 10T Hub/B	279.00
Asante 10T Hub/12	559.00
PersonToPerson 2 Pack	105.00
10-User Pack	279.00
Zone Pack	489.00

CACHE CARDS, ACCELERATORS, AND COPROCESSORS



**LOGICA IIsi
CACHE BUNDLE
ONLY \$249**
INCLUDES 64K CACHE,
DUAL SLOT ADAPTER,
20MHz FPU CHIP

Accelerate your Mac IIci or IIsi by up to 350% with Logica's new line of 68030 accelerators! The LogiCache 50MHz '030 is hundreds of dollars less than DayStar, and has a full 64K of cache RAM (twice as much as DayStar.) For an economical performance boost, try the LogiCache IIci or IIsi for a 40% speedup. All Logica cards for the IIsi can use the IIsi Dual Slot Adapter, to allow use of the cache card as well as other video or Ethernet cards in your IIsi. Logica math coprocessors for the LC, LC II, and Classic II increase math calculations over 100%. For maximum performance, choose '040 accelerators from Fusion Data or Radius.

LogiCache IIci 50MHz w/882	1199.00
LogiCache IIci 50MHz	979.00
LogiCache IIsi 50MHz w/882	1239.00
LogiCache IIsi 50MHz	999.00
LogiCache IIci 64K Cache	139.00
LogiCache IIsi 64K Cache	149.00
Logica IIsi Dual Slot Adapter	59.00
20 MHz Math chip for Adapter	69.00
DayStar PowerCache 33,40,50 MHz	CALL
DayStar PowerCache above w/882	CALL
Radius Rocket and Radius Rocket 25i	CALL
TokaMac 040 Accelerators for the LC, IIsi, SE 30, IIci, and the Mac II FX	CALL
Logica LC, LC II, or Classic II FPU	69.00

DISPLAY SYSTEMS



Seiko 14" Trinitron	559.00
SuperMac 17"	1099.00
SuperMac 20" Trinitron	2549.00
ThunderStorm, Spectrum and Thunder cards	CALL
E Machines Complete Line	CALL
Ikegami 20" Trinitron with 24 bit Accelerator	2899.00
Radius Pivot, Color Pivot	CALL
Video Spigot Complete Line	CALL

International Orders call (512) 832-8282 FAX (512) 832-1533 We accept Visa, Mastercard, American Express, and Discover.
Corporate, educational, and government purchase orders accepted. Most deliveries via Federal Express.

THIRD WAVE

1(800)880-0099



OPTICAL 128 FROM \$1299

COMPARE OUR DAT DRIVES TO THEIRS.

	Third Wave OATdrive	The Other Guys
Warranty	5 years	2 years
Price: 2GB	1395.00	1399.00
Compression (8GB)	1595.00	1699.00 (only 5GB)
Firmware Upgrades	From tape	Chip replacement
Upgrade Method	User install	Vendor install
OEM	Hewlett Packard	Archive
Form factor	3.5"	3.5"
MTBF	50,000 hours	40,000 hours
Software	Retrospect	Retrospect

STORAGE SYSTEMS REMOVABLE MEDIA

Optical 12BP	1299.00
Optical 12BS (SONY)	1499.00
Optical 600 (SONY)	2699.00
45 SR (SyQuest) w/cartridge	445.00
BB SR (SyQuest) w/cartridge	575.00
OATdrive 2GB	1395.00
OATdrive 8GB (five year warranty)	1595.00

DISK DRIVES

	INTERNAL	EXTERNAL
Go•80**	439.00	529.00
Go•120**	519.00	609.00
120 MB	399.00	489.00
240 MB	CALL	CALL
520 MB	1199.00	1299.00
830 MB	1419.00	1519.00
1.2 GB	1749.00	1849.00
1.5 GB/2.0 GB	CALL	CALL

DAT



All of our OAT drives include Retrospect 1.3, one OAT cassette, one OAT cleaning cassette, and your choice of SCSI cable.

SyQuest, Optical, and OAT available internally for the Quadra 950!

*One Year Warranty

**Internals for PowerBooks only

MEDIA

80 MB Tape for Teac	17.00
150 MB Tape for Teac	24.00
SyQuest 45 or 88 MB cartridge	88.00 / 115.00
OAT cassette 60 or 90 meter	17.00 / 29.00
Optical cartridge (ISO) 512 kb/sector	115.00
Optical cartridge (ISO) 1024 kb/sector	115.00
Optical cartridge 128 MB	45.00

SPECIAL! Adobe Photoshop 2.01 449.00

PowerBook Accessories

PSI PowerModem	209.00
Global Village Bronze FaxModem	209.00
Global Village Silver FaxModem	459.00
Global Village Gold FaxModem	629.00

Scanners

Agfa ARCUS 1200 dpi	3249.00
UMAX UC630	1199.00
UMAX UC1200	3249.00

MEMORY UPGRADES

1MB, 2MB, 4MB SIMMs	BEST PRICES!
16MB SIMM (Iisi, Iici, Quadra 900/950)	479.00
16MB SIMM (Quadra 700)	499.00
PowerBook 2MB	95.00
PowerBook 4MB	169.00
PowerBook 6 MB	239.00
PowerBook 100 4MB	179.00
PowerBook 100 6MB	259.00
Quadra 700/900 VRAM SIMM	29.00
Quadra 950 VRAM SIMM	34.00
LC 512K VRAM SIMM	59.00

SIMM Prices subject to change, reflect cash discount.

16MB
SIMMS FROM
\$479

Quantum GO•120 2.5 inch
16ms Internal drive with
Third Wave's 6 megabyte
PowerRAM memory module
—only \$799.00!*

A total of 120MB storage and 6MB
pseudo-static RAM! Send us your
PowerBook and we'll install it free!

*(Includes trade in of Apple 2MB module
and drive, Models 140 and 170 only.)

Also available—8/80 for only \$649.00

A SPECIAL OFFER FOR
POWERBOOK OWNERS!

8/120 IN YOUR
POWERBOOK
FOR ONLY \$799!

Circle 156 on reader service card

THIRD WAVE COMPUTING, INC. 1826B Kramer Lane Austin, Texas 78758 (800) 880-0099 (512) 832-8282 FAX (512) 832-1533
Toll Free Tech Support line- (800) 844-9283

Lowest Prices
Great Service

MAC DEPOT™

1-800-222-2808

Overnight Delivery
30-Day MBG

HARDWARE

ACCELERATORS

DAYSTAR - 30 DAY MONEY BACK GUARANTEE
POWERCACHE 33MHZ 599.00
POWERCACHE 40MHZ 799.00
POWERCACHE 50MHZ 1179.00

RADIUS
ROCKET 25i 1199.00
ROCKET 25MHz 1615.00
ROCKET 33MHz 1995.00

DISK DRIVES

MASS MICROSYSTEMS
DATAK 45 499.00
DATAK 88 639.00

INPUT DEVICES

COSTAR
STINGRAY TRACKBALL 85.00
KENSINGTON
NOTEBOOK KEYPAD 99.00
TURBO MOUSE 4.0 105.00

SOFTWARE TOOLWORKS
MIRACLE PIANO 345.00
WACOM - 30 DAY MONEY BACK GUARANTEE
6X9 TABLET 479.00
12X12 TABLET (STANDARD) 679.00
12X12 TABLET (ELEC-STATIC) 739.00

MODEMS & FAXES

GLOBAL VILLAGE
POWERPORT BRONZE 229.00
POWERPORT SILVER 449.00

UMAX
WITH ADOBE PHOTOSHOP 2.0
COLOR SCANNERS

UC1200S \$2995.00
UC630 \$1139.00
TRANSPARENCY ADAPTER \$699.00
UC1200S SHOWN HERE WITH OPTIONAL TRANSPARENCY ADAPTER.

POWERPORT GOLD 609.00
TELEPORT BRONZE 209.00
TELEPORT SILVER 375.00
TELEPORT GOLD 459.00

PSI
POWERMODEM 195.00
COMSTATION 1 189.00
COMSTATION 2 279.00
COMSTATION 3 (14.4, V.32) 458.00
COMSTATION 4 329.00
COMSTATION 5 (14.4 FAX) 519.00

SUPRA
FAX/MODEM V.32BIS 349.00

PRINTERS & SCANNERS

GCC TECHNOLOGIES
PLP II CALL
BLP ELITE CALL
WRITEMOVE II CALL

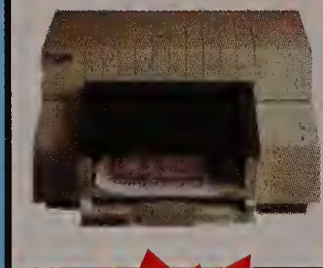
NEWGEN - 30 DAY MONEY BACK GUARANTEE
B-SERIES LASER PRINTERS CALL
TURBO PS/660 (600DPI) 2795.00
TURBO PS/880 (800DPI) 3699.00

MONITORS & VIDEO BOARDS

MICRON
8BIT VIDEO CARD SE/30 199.00
24BIT VIDEO CARD SE/30 349.00

RADIUS
POWER VIEW 499.00
PRECISION COLOR 8XJ 499.00
PRECISION COLOR 24XK 799.00

FAX your order in:
(310)-214-0932



With 3-YEAR
WARRANTY

PRECISION COLOR 24XP 499.00
VIDEO VISION 1989.00
21" COLOR DISPLAY 1989.00

SEIKO
CM1445 HI-RES MONITOR 539.00
SUPERMAC
THUNDER/24 CALL



HEWLETT
PACKARD

Deskwriter
with cable \$379.00
Deskwriter C
with cable \$629.00

LASERJET IIISI 4395.00
SCANJET IIC 1349.00
PAINTJET XL 300 CALL

THUNDER LIGHT 1879.00
THUNDER STORM 839.00
SUPERMATCH 21" COLOR DISPLAY CALL

SOFTWARE

radius™

The Deals
of the
Century!

Color Pivot/LE

~~\$1598.00~~



256 colors, 832 x 624
resolution, Portrait &
Landscape Orientations

~~\$799.00~~

Video Card
Included

DirectColor/GX

~~\$599.00~~



24-Bit
accelerated
NuBus
video card

Limited quantity
available

Exclusive!
~~\$299.00~~

OUR POLICIES

30-day MBG applies to designated manufacturers only. Call customer service at (310) 214-0000 for a Return Authorization. All returns without an authorization number (RA #) will be refused. Returned products must be in original condition and packaging and must be sent back within 30 days of our invoice date. No refunds for freight charges.

Prices and availability of product are subject to change without notice. Personal checks require up to 10 working days to clear. Include: name, address and telephone numbers (no P.O. Boxes please). If ordering by credit card, include expiration date and billing address. California residents (only) add 8.25% for sales tax.



ESTABLISHED 1985

MAC DEPOT™

1-800-222-2808

4453 REDONDO BEACH BLVD.
LAWDALE, CA 90260
Canada Toll-Free: 1-800-548-2512

DESKTOP DIAGNOSTICS

SNOOPER

SPECIAL OFFER: BUY SNOOPER
GET NORTON UTILITIES 2.0 FREE!

UTILITY DEAL OF THE CENTURY
Software \$109.00 SNOOPER kit \$139.00

BUSINESS

CAERE
OMNIPAGE 449.00
OMNIPAGE DIRECT 219.00
OMNIPAGE PRO 629.00

CLARIS - 30 Day MBG
CLARIS WORKS 189.00
FILEMAKER PRO 259.00
MACWRITE II 89.00
MACPROJECT PRO 389.00
RESOLVE 169.00

newgen

30-DAY MBG

TURBO 400P \$1699.00
TURBO 300P \$1239.00

TURBO PS/660 \$2795.00
TURBO PS/880 \$3565.00
NEW! B-SERIES CALL

MICROSOFT - 30 Day MBG
EXCEL 4.0 289.00
OFFICE 469.00
WORD 5.0 289.00

DTP & GRAPHICS

ADOBE - 30 Day MBG (Except fonts)
ILLUSTRATOR w/ATM 359.00
PHOTOSHOP 2.0 545.00

ALDUS - 30 Day MBG
FREEHAND 3.1 389.00
PAGEMAKER 4.2 489.00

CLARIS - 30 Day MBG
MACDRAW PRO 1.5 249.00

QUARK - 30 Day MBG
QUARK X PRESS 3.1 579.00

UTILITIES

APPLE
APPLESHARE 3.0 989.00
APPTALK REMOTE ACCESS 169.00
AT EASE 49.00
QUICKTIME STARTER KIT 149.00
PC EXCHANGE 79.00
SYSTEM 7 89.00

FWB - 30 Day MBG
HARD DISK TOOL KIT 124.00
HD TOOL KIT PERSONAL 52.00

SALIENT SOFTWARE - 30 Day MBG
AUTODOUBLER 59.00

SYMANTEC - 30 Day MBG
NORTON UTILITIES V2.0 95.00
SAM 65.00

USE OUR TOLL-FREE INTERNATIONAL PHONE LINES
Australia 0014-800-125-712; Canada 1-800-548-2512;
Denmark 0434-0297; France 19-0590-1099; Italy 1678-
74086; Japan 0031-11-1351; Netherlands 06-022-8613;
Norway 050-12029; Switzerland 046-05-3420; United
Kingdom 0800-89-1178

Nº 1 IN

VALUE

MACCENTER™

The Center Of The Macintosh Universe™

Nº 1 IN

SERVICE

ACCELERATORS: 68040 & 68030

radius™

Rocket 25i
Rocket 25
Rocket 33



\$1199
\$1599
\$1999

IMPULSE™
TECHNOLOGY

Animals
Performance/040/iop 25 MHz
Performance/040/iop 33 MHz

\$47
\$1495
\$1895

NEWLIFE™ MacUser
★★★★12

Classic Accelerator \$489
SE 16 MHz 68030 \$399
SE 25 MHz 68030 \$679



DAYSTAR

D I G I T A L

SALE!

"...this is one Mac purchase you'll never regret."
MacWEEK 9/17/91



All PowerCards & PowerCaches are
brand new, in original DayStar boxes.
All sales final.



PowerCards

40 MHz PowerCard 030 (IICx only) \$599
50 MHz PowerCard 030 (II, IICx, IICx) \$899

PowerCaches (Non-Universal & Universal)

40 MHz PowerCache 030 \$599/\$799
50 MHz PowerCache 030 \$899/\$1099



**We Stock All
Printer
Accessories &
Supplies**

microLaser
Plus
PS 17 • PS 35

MacUser
★★★★

**2 Meg NEC
Upgrade \$159**

NEC

Silentwriter2 Model 95
Second Paper Drawer
Fax Upgrade

\$ 379
\$299
Call!

\$1379

\$1329



**TEXAS
INSTRUMENTS**

MacUser
★★★★

microLaser Plus PS17
microLaser Plus PS35
microLaser Turbo

\$1199
\$1329
\$1499

SupraFAXModem™

The SupraFAXModem V.32bis
is the only 14,400 bps
modem with 14,400 bps send
and receive fax!



SupraFAXModem V.32bis w/sft/cbl \$379
SupraFAXModem V.32 wo/sft/cbl \$329



**ALL PRINTER PRICES INCLUDE
FREE TONER**

OPTICAL DRIVES

**256 MB
3.5"
OPTICAL**



Puma 128 MB 3.5" \$1399
Puma 256 MB 3.5" \$1699
128/256 MB 3.5" Cartridge \$49/\$99
600 Meg 5.25" Cartridge \$105

All Puma Optical drives come with a metal case, a universal
power supply, 12 megs of shareware, SCSI & power cables
and a one year warranty. Ask about our **Five Year Warranty**.

MONITORS

**radius 21" MONITORS
AT A 19" PRICE!**



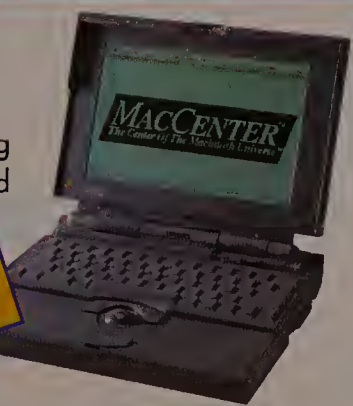
\$1895

NEC

MultiSync 3FGx \$639
MultiSync 4FG \$759

MACINTOSH SYSTEMS

We Stock
PowerBook
Batteries, Battery
Chargers, Carrying
Case, Modems and
Display Adapters.



**3 HR BATTERIES
\$89**

PowerBook 145 4.80 \$2359
PowerBook 160 4.40/170 4.80 \$Call!/\$3759
PowerBook 180 4.80 \$Call!
Quadra 700 \$3799
Quadra 950 \$Call!

We also stock IICi, IIsi, and all Quadras.

SIMMs

4 Meg 80ns **\$99**
(with trade in)

1 Meg 80ns **\$30**

2 Meg 80ns **\$58**

6 Meg
PowerBook
Memory **\$259**

All memory prices subject to change without notice.



HOURS: 8:00 am - 8:00 pm CST M-F
10:00 am - 4:00 pm CST Saturday
Sunday: Call, you may get lucky.



MACCENTER™

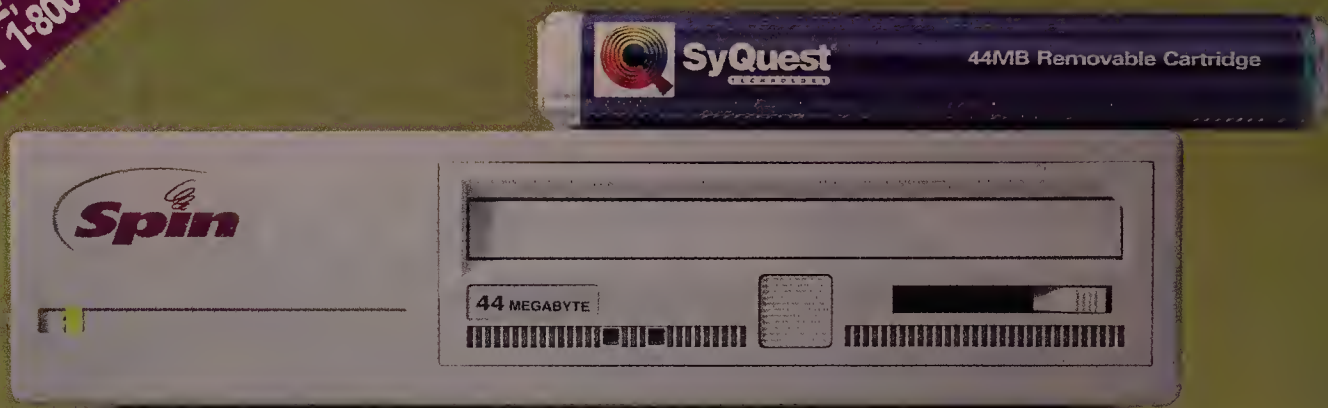
4930 South Congress, Suite 303 • Austin, Texas 78745

FAX 512-444-3726
International Orders 512-445-5114

800 9500950

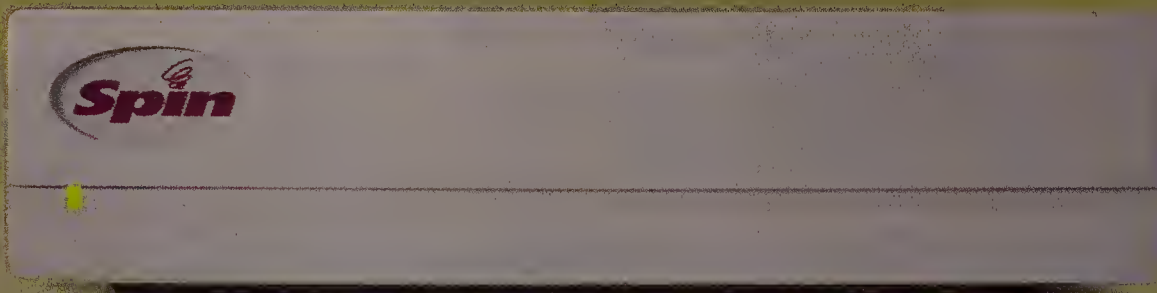


YOU WON'T FIND A BETTER DRIVE, OR A BETTER
VALUE, ANYWHERE. CALL US AT 1-800-466-1200.



44MB removable SyQuest® drive. With cartridge (a \$61 value).
88MB Syquest Drive: \$519. 2-year warranty. Additional cartridges: 44MB, \$61. 88MB, \$99.

\$399



	40MB Quantum ELS	105MB NEC D3856	210MB Maxtor 7213	425MB Quantum Pro	870MB Toshiba MK-438
Internal Hard Drive	\$199	\$299	\$479	\$929	\$1,269
External Hard Drive	\$289	\$379	\$559	\$999	\$1,339

MEGABYTES AT EASY-TO-SWALLOW PRICES.

Have you heard the one about the peripherals manufacturer who decided to start a price war? Guess who wins. You do.

You get top-quality removable SyQuest hard drives, cartridge included. Or hard drives with industry-acclaimed drive mechanisms. Plus great customer service. And a 30-day, money-back, no-questions-asked guarantee. No joke.

Just call 1-800-466-1200, 9 to 9 Eastern. Kind of makes the idea of buying anywhere else seem laughable, doesn't it?

To Order Call:
1-800-466-1200
FAX: 1-617-965-6257



SpinTM
PERIPHERALS

800-624-2926

USA/Canada



EDUCATIONAL

708-888-8300

Illinois

Your #1 Source for Educational Software & Technology

RESOURCES™

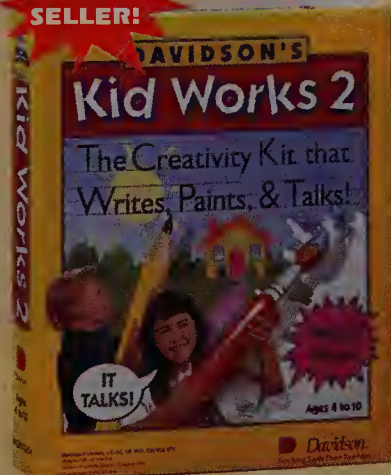
Gifts that
unwrap a
child's potential!

NEW!



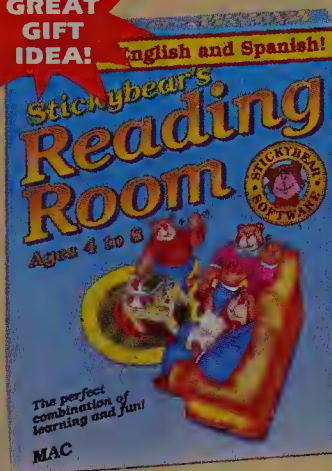
\$124⁹⁸ MAC
(Retail \$229.00)
with NuBus card \$159.65

TOP
SELLER!



\$33⁹⁸ MAC
(Retail \$59.95)
School Version \$59.65

GREAT
GIFT
IDEA!



\$34⁹⁸ MAC
(Retail \$59.95)

SAVE UP
TO 60%

NEW!



\$28⁹⁸ each MAC
(Retail \$44.95)

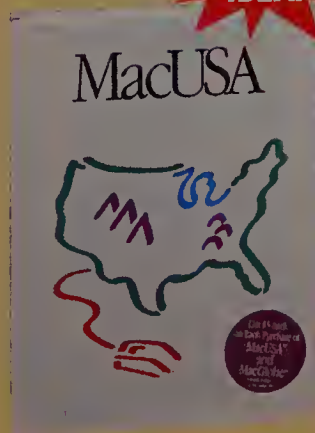


NEW!



\$37⁹⁸ MAC
(Retail \$59.95)

GREAT
GIFT
IDEA!



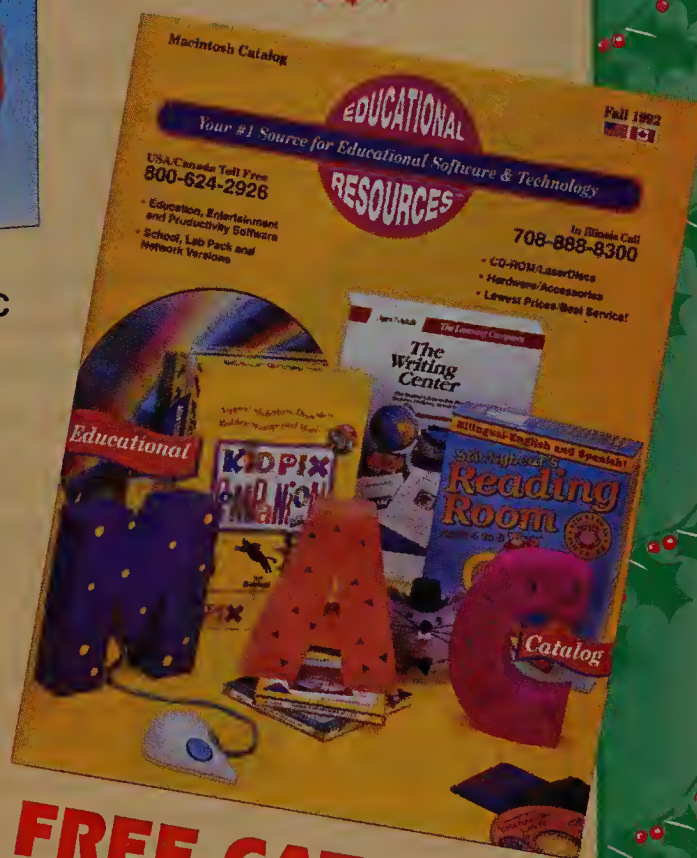
\$34⁹⁸ MAC
(Retail \$59.95)
School Version \$55.65

\$34⁹⁸ MAC
(Retail \$59.99)

NEW!



FREE CATALOG!
CALL 800-624-2926



Call for your
FREE
Educational
Macintosh
Catalog!
SAVE up to 60% on
software, CD-ROM,
LaserDiscs, hardware,
accessories and more!

Educational Resources • FAX 708-888-8499 • 1550 Executive Drive, Elgin, IL 60123

• Checks & School P.O.s welcome • \$25 min. on charge cards • Free shipping over \$300 in U.S. • Under \$300 add 5% shipping with \$4.50 min.
• Canada under \$200 add 10% with \$5 min. / over \$200, add 5% - also add 7% GST • Prices effective through January 31, 1993



Circle 28 on reader service card

Leader in Price,
Service and Support

Complete Mac Systems... Lowest Prices



with ColorPage T-16 -II with 24-bit color (pictured above) \$4,495.

Mac IIci System

\$3,049

Macintosh IIci, 5mb RAM, 105mb HD, Extended Keyboard, 8-bit 14" Color Monitor.

Mac Quadra 700

\$4,329

Quadra 700, 4mb RAM, 105mb HD, Extended Keyboard, 24-bit 14" Color Monitor.



with ColorPage T-16 -II with 24-bit color (pictured above) \$5,468.

MacSource

MacSource PowerBook Special!

Let us custom build a system for you!

Mac IIsi, 3/0	\$1,470
Mac IIci, 5/0	\$2,299
Mac Quadra 700, 4/0	Call
Mac Quadra 950, 8/0	Call
NEW! PowerBook 145, 4/40	\$1,995
PC Guardian Security Kit	\$59

MacSource is the Mac Solutions Leader!

JetFill Ink Refills will Make Your Ink Jet Printer Cartridges Like New, For Half the Cost!



Mac LC II

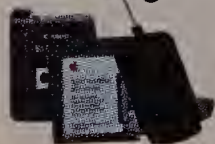
\$1,659

LC II, 4mb RAM, 80mb HD, Standard Keyboard, 14" Color Monitor, 8-bit color.

Mac LC II Power System

\$1,975

LC II, 10mb RAM, 105mb HD, Standard Keyboard, 14" Color Monitor, 8-bit color.



JetFill®

For about half the cost of a new ink cartridge you can refill your Deskwriter, StyleWriter, or PaintJet. Odds are if your printer uses ink, you can refill it with the clean and easy to use JetFill process.



Other JetFill Products

	Two-Pack Price
DeskWriter, StyleWriter	\$15 ⁸⁹
EconoPak™ (5 refills, 1 new cartridge) ..	\$55
PaintPak (PaintWriter)	\$49
Kodak Diconix (Equivalent to 7 refills) ..	\$37

Available in Black, Red, Green and Blue

HP DeskWriter,
StyleWriter, Canon Refill

Two-Pack \$15⁸⁹

**FREE SHIPPING
ON ORDERS OVER \$45***

* Free Shipping Applies to JetFill Products Only

Display Solutions

Radius Color Pivot LE \$869

Sony 14-inch color \$399

Panasonic 14" color \$389

19-Inch color monitor \$2295

24-bit color card \$475

19" 24-bit color card \$749

Apple 12" Mono Monitor ... \$179

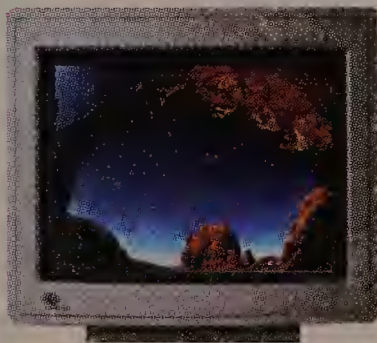
RasterOps, Radius & Sony Call



Seiko CM-1445

\$569

E-Machines Display Solutions



Color Monitors and Cards

ColorPage T-16 II \$1295

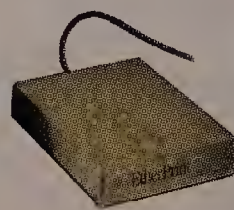
ColorPage T-19 \$2499

Double Color SX \$399

24-bit Accelerated Color Card as low as \$499

ColorLink Ethernet Series starts at \$519

For our best deal call us at 1-800-737-2622.



EtherNet Answers

Dayna EtherPrint \$349

Dayna Quadra Transceiver \$89

Dayna DOS Mounter \$49

Dayna EtherNet Starting at \$149

Asante EtherNet Starting at \$185

MORE MAC SYSTEMS

MACINTOSH IIsi

Macintosh IIsi, 5mb RAM, 105mb Hard Drive, 1.44mb Apple FDHD, Mouse, Extended Keyboard, 14" Color Monitor, 8 Bit Color.

\$2,339

MODEMS

Solectek FAX Modem \$99

Zoom 2400 Baud External \$49

INPUT DEVICES

Keytronic MacPro Plus \$129

DataDesk SwitchBoard \$169

Kensington Turbo Mouse \$109

Silhouette Trackball \$85

Curtis MVP Trackball \$85

WACOM TABLETS

6x9 Standard \$449

12x12 Standard \$669

12x18 Standard \$969

Call For More Wacom Pricing

PRINTERS

Apple StyleWriter \$369

TI MicroLaser PS/35 with AppleTalk \$1389

NEC SilentWriter II Model 95 \$1499


IBM LexMark Printers Call

800/467-2622

A Free Call. Nothing per Minute.

MacSource™ • 7801 North Lamar, Suite E-190
Austin, Texas 78752 • (512) 406-7155
FAX: (512) 467-2642 • Tech Support: (512) 406-7163
Visa, MasterCard, American Express & Discover without
surcharge.



A man in a light-colored short-sleeved shirt and dark pants, wearing a cap with the Mac's Place logo, stands with his hands on his hips. The background is dark and industrial.

Remember this guy?

We do. Maybe not him personally, but what he provided – full service.

He washed the windows and checked the tires as a matter of course. He knew something about an engine and could help if you had trouble. He took a genuine interest in the quality of his work and in your satisfaction.

That's the kind of service we strive for at Mac's Place. We ask about your needs and your machine because we want you to get the right product. We won't sell you something that won't work on your system. And we won't try to talk you into a product that's more than you need.

We know what works in the real world because we use Macs, too – exclusively.

(Ask other dealers what machine they use for their accounting.) And our Mac consultants try each product *before* we decide to sell it.

Old fashioned? Maybe. But that's how we do business. And we top it off with \$3 overnight delivery per order, not per product.

You *could* take your chances buying somewhere else, but we know you won't find service like ours. **At Mac's Place, full service is not a thing of the past.**

Mac's PlaceTM

Take a look at the products on the following pages. Then give us a call and find out what full service is all about.

Call 1-800-367-4222 (U.S. & Canada) to order.

- Mon. through Fri. 6 a.m. to 10 p.m.
- Sat. & Sun. 6 a.m. to 6 p.m., Pacific Time.
- You'll get our latest catalog free with your order.

©1992, Mac's Place, Inc. Mac's Place and the Mac's Place logo are trademarks or registered trademarks of Mac's Place, Inc. All other marks are the property of their respective companies.

"Call us and find out what full service is all about."

ACCESSORIES

- Apple**
1205 Toner/LaserWriter II 98.
- Articulate Systems**
74558 Voice Navigator SW 348.
- Colorado Spectrum**
4826 The Mouse Yoke 30.
- CoStar**
73454 Stingray Trackball 88.
- InCom**
74026 CompuCase PowerBook .. 78.
- Kensington**
74345 NoteBook Keypad 98.
74692 Turbo Mouse V4.0 115.
- Key Tronic**
73129 Mac Pro Plus 138.
- Maxell**
71842 150-MB CS600XD 22.
- Solidex, Inc.**
4368 PowerBook Case Coskin 58.
- Sophisticated Circuits**
74005 PowerKey w/QuickKey Lt ... 75.
74648 PowerPad 79.

BUSINESS

- ACIUS**
73588 4th Dimension V2.2 498.
- Aldus**
74058 Persuasion 318.
- Attain Corp.**
73950 In Control 89.
- Bananafish Software**
74740 ThoughtPattern 1.3 94.
- Brainchild**
74901 Shortlist 98.
- Calera**
73658 WordScan Plus 378.
- Ceres Software**
73513 Inspiration 3.0.1 158.
- Chena Software**
74625 Fair Witness 1.2 88.
- Claris**
75067 Claris Works w/ Quicken 198.
75057 FileMaker Pro 2.0 278.
- Coral Research**
74902 Timelog 62.
- DeltaPoint**
75098 DeltaGraph Pro.w/Calc. ... 198.
- Diamante Software**
74279 Control Classic 298.
- Helix Technologies**
74931 Helix Express 328.
- Intuit**
73601 Quicken 3.0 40.
- JIAN**
74328 BizPlanBuilder 85.
74329 EmployeeManualMaker ... 94.
- Microsoft**
74356 Excel 4.0 295.
74357 Excel 4.0 Upgrade 95.
75068 Works 3.0 159.
74009 Word 5.0 294.
74347 Word 5.0 Upgrade 124.
- Now Software**
74059 Up to Date (Single User) ... 64.
- Pastel Development**
73685 DayMaker 58.
- PC Globe**
74257 MacGlobe 45.
74258 MacUSA 34.
- Peachtree Software**
74481 Peachtree Acct. Mac 78.
- SoftSync**
73086 Accountant Inc. 358.
- Spider Island Software**
TeleFinder
73945 Group Ed.-Unlimited 272.

- Symantec**
75099 More 3.1 Special 198.
- Westware**
74109 Contact Ease V1.3 188.
- White Crow**
74910 Office Manager 74.
- Wolfram Research Inc.**
74678 Mathematica Enhanc. 788.
- WordPerfect Corp.**
74111 WordPerfect V2.1 278.

GRAPHICS

- Adobe**
73942 Illustrator 3.2 w/ATM 368.
74990 Premier 2.0 448.
74991 Premier 2.0 Upgrade 149.
73487 Photoshop 2.01 548.
- Aldus**
74035 Freehand 3.1 388.
74771 IntelliDraw 198.
74024 Pagemaker 4.2 489.
73545 SuperPaint 3.0 128.
- Altsys**
74263 Fontographer 3.5 258.
- Broderbund**
73796 TypeStyler 2.0 128.
- Calliscope Software**
74041 Satellite 3D 128.
- Computer Associates**
74218 Cricket Draw III 168.
- Deneba**
73394 Canvas V3.0 268.
- DiVA Corporation**
74525 VideoShop 398.
- Fractal Design**
74085 Painter 1.2 248.
- Light Source**
74526 Qfoto 278.
- Macromedia**
74354 MacroMind Direc. 3.1 848.
72653 Swivel 3D Pro. 429.
- Media In Motion**
Interactive Training
74505 MacroMind Director 125.
- PhotoDisc Inc.**
74183 PhotoDisc Vol. I-CD 278.
- Quark Incorporated**
74006 XPress 3.1 558.
- Specular International**
74818 Infini-D V2.0 648.
- Strata, Inc.**
74082 StrataVision 3D V2.5 628.
- Timeworks**
74773 Color It! 2.0 168.
- Virtus**
73969 WalkThrough 298.
- Vision Software International**
74492 CameraMan 98.
- Vividus Corp.**
74205 Cinemation 378.

EDUCATION

- Broderbund**
73603 Kid Pix V1.2 35.
- Optimum Resource**
74877 Stickybear's Reading Rm ... 34.
- Software Toolworks**
72202 Mavis Beacon 32.
- The Voyager Company**
74862 A Silly Noisy House CD ... 38.

ENTERTAINMENT

- Delta Tao Software**
74057 Spaceward Ho! 2.0 35.
72891 Strategic Conquest 3.0 35.
- DigiTek Software**
74250 Hole-In-One Golf 24.

- Electronic Arts**
73496 PGA Tour Golf 37.
- Inline Design**
73493 3 in Three 31.
- ISM, Inc.**
74326 Surgeon 3, The Brain 32.
- Microsoft**
73532 Flight Simulator 4.0 39.
- Reactor Inc.**
75100 Spaceship Warlock 62.
- Soft Wars**
74528 Full Metal Mac 26.
- Strategic Studies Group**
73933 Warlords 38.
- Triad Publishing, LTD**
74578 Lottery Tracker&Wheeler... 29.
- Velocity**
73596 Spectre 38.
- Virgin Games**
74001 Monopoly 31.
74428 RISK 31.
74000 Scrabble Deluxe 31.

HARDWARE

- Applied Engineering**
74046 Plus Drive 308.
73681 QuickSilver IIsi 236.
- Asanté**
Ethernet Hubs
74095 10T Hub/8 258.
73445 10T Hub/12 528.
Ethernet Cards-NuBus
73705 MacCon3 NB 238.
Ethernet Cards-IIsi & SE/30
73071 MacCon+ 30iET 198.
- PowerBook SCSI Adapters**
74093 EN/SC 368.
- SCSI Adapters**
74092 EN/SC-10T 258.
- Artix Technologies**
74853 Tamarack 8000C 1542.
- Dayna Communications**
74955 Network Mgmt. System778.
- LocalTalk to Ethernet Adapters**
73038 EtherPrint-T 338.
- DayStar Digital**
74271 ComboCache IIsi-FPU 328.
74276 Equalizer LC w/FPU 258.
74982 FastCache Quadra 268.
- PowerCache Accelerators**
73740 40Mhz 798.
73743 40Mhz w/FPU 968.
73741 50Mhz 1148.
73744 50Mhz w/FPU 1398.
- E-Machines**
Color Displays
74018 ColorPage T16-II 1362.
- Farallon**
PhoneNET
71557 Connectors DIN-8 29.
- Global Village**
PowerPort
74815 Bronze 2400 218.
74814 Silver 9600 438.
74813 Gold v.32bis 588.
- Lapis Technologies Inc.**
DisplayServer Video Cards
74720 II Dual Page 168.
74716 II Full Page 178.
74721 LC Dual Page 168.
74745 ColorServer II-21 418.
- Monitors**
74700 Dual Page - Mono 738.
74699 Full Page - Greyscale 578.
74698 Full Page Monochrome ... 458.
- Microtek**
73824 ScanMaker II Call.
- NewLife Computer Corp.**
74521 Classic Accelerator 489.
74520 Classic Acceleratorw/FPU... 568.
- PCON**
72874 Hyper-Net Din 8 15.

- Radius**
Accelerators
74778 Rocket 25MHz 1612.
74779 Rocket 33MHz 2158.
75227 RocketShare 1448.
- Monitors**
74783 Color Pivot 1368.
- Video Cards**
74803 Color Pivot II Interface ... 518.
74794 PrecisionColor 24XP 518.
74791 PrecisionColor 8XJ 518.
- RasterOps**
Video & Multimedia
73181 24STV 828.
- Seiko**
73826 CM 1445 14" Trinitron ... 598.
- Shiva**
74452 LanRover/L 598.
72179 Ethergate 1289.
- SIMM**
PowerBook Memory 140/170
73965 6-MB Psuedo-Static 298.
Single Inline Memory Modules
73179 1-MB 80ns 32.
73701 2-MB 70ns 65.
72738 SIMM 4-MB 80ns 120.
72770 SIMM FX 4-MB 80ns 138.
74754 16-MB High Profile 598.
74755 16-MB Low Profile 648.
- Video RAM for LC, Quadra**
74337 256K 37.
74338 512K 59.
- Sigma Designs**
15" Power Portrait Monochrome
74443 Platinum 828.
- SuperMac**
75011 ThunderStorm 898.
- 24 Bit Display Cards**
74138 Spectrum/24 Series III 898.
74156 Spectrum/8•24 PDQ 898.
- Monochrome/Greyscale Monitors**
74169 Plat. 21" 2-Page 1138.
- SuperMatch Color Monitors**
74167 17" Multimode Color 1268.
74163 20" Dual-Mode Trin. 2698.
- Video Capture/Multimedia**
74149 Spigot & Sound Pro NB 1698.
74147 VideoSpigot Pro si 1348.
- Supra Corp.**
Supra FaxModem
73931 Plus MacPac 178.
74016 V.32 MacPac 328.
74017 V.32bis MacPac 378.
- Thunderware**
73653 LightningScan Pro 256 489.
- Wacom**
12X12 Digitizers w/Cordless Stylus
73031 Electro Static Firm 836.
73032 Electro Static Soft 836.
73030 Standard Firm 758.
73029 Standard Soft 758.
- 6 X 9 Digitizers w/Cordless Stylus**
73028 Standard Firm 518.
73027 Standard Soft 518.

HARD DRIVES

- DataPlace**
External Hard Drives
74196 DP+ 425-MB Quantum .. 1398.
- Internal Hard Drives**
74201 DP+ 240-MB Quantum ... 758.
74202 DP+ 425-MB Quantum .. 1298.
- Removable Syquest Hard Drives**
74197 DP+ 44-MB w/cart. 508.
74198 DP+ 88-MB w/cart. 698.
- Iomega**
73040 Interface Kit Call.
- Bernoulli Drives**
73501 Transportable 90 PRQ 698.
- Bernoulli Media**
73531 90-MB Cart. 139.
73503 Tri-Pack 90-MB Carts. 399.
- Quantum 3.5" Drive**
Low Profile
73370 52-MB 17ms Call.

- 74065 240-MB 12ms 738.
- Syquest**
72269 44-MB Cartridges 69.
73458 88-MB Cartridges 107.

PROGRAMMING

- Bowers Development**
74099 AppMaker 1.5 214.
- Pluma Software**
74770 Cause 3.0 189.
75015 Net Effect 188.
- Symantec**
73524 THINK C 5.0 198.
73584 THINK Pascal 4.0 159.
73393 THINK Reference 69.
- TGS Systems**
73616 Prograph V2.5 298.
- UserLand Software**
74211 Frontier 1.0 189.

BOOKS

- Addison Wesley**
Inside Macintosh
4893 Files 22.
4896 Imaging 22.
4892 Mac Toolbox Essentials 26.
4895 Memory 18.
4891 Overview 15.
4894 Processes 17.
- Peachpit Press**
74985 Mac Bible 4th Ed 19.
- Voyager Company**
74897 Complete Hitch Hikers 15.

UTILITIES

- Berkeley Systems**
71232 After Dark 2.0 29.
73523 After Dark & M.A.D. Bun. ... 39.
- Casady & Greene**
74976 Super QuickDex 58.
- CE Software**
73388 QuickKeys 2.1 89.
- Connectix**
74861 CPU-Connectix PB Util 48.
- Fifth Generation**
74696 Suitcase V2.1 49.
- Insignia Solutions**
Soft PC
73833 Universal V2.5 194.
73834 AT V2.5 298.
- Kent/Marsh**
73978 Folderbolt 69.
73979 Nightwatch II 89.
- Metatec/Discovery Systems**
7World Almanac & Bk of Facts/92 49.
- MicroMat**
74417 MacEKG 2.0 98.
- NoHands Software**
74860 Magnet 88.
- Nova Development**
74491 Kaboom! 28.
- Now Software**
75017 Now Utilities V 4.0 98.
- Quantum Leap**
74100 Giga-RQM 2.0-Super Lbr ... 98.
74871 CD-7 Sys 7 Super CD 74.
- Sabastian Software**
74033 Image Grabber 3.0 35.
- Salient**
74049 AutoDoubler 48.
72581 DiskDoubler 48.
- Soft Writers**
74642 Disk•Go 48.
- STF Technologies, Inc.**
75102 FAX Manager Plus 94.
- Symantec**
74303 Norton Utilities 2.0 95.
73279 S.A.M.III 64.
- Teknosys**
74086 Help! 89.

Mac'sPlace

We understand Macintosh products better than anyone else.
1-800-367-4222

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible • 30-60 Day Money Back Guarantee

"We'll deliver it tomorrow for just \$3".

◀ QuickTime Starter Kit

Includes everything you need to get started with QuickTime – the QuickTime INIT, Movie Player, Movie Converter, PICT Compressor, and a CD-ROM full of QuickTime movies you can integrate into your work. Also comes with a full manual on using QuickTime.

Apple Corporation

4608 QuickTime Starter Kit\$158.

▶ At Ease

New! Put your mind at ease. You choose which applications you'll allow others to access and put them on the At Ease desktop. The rest of your hard disk is protected by a password. Great for homes with computers and children.

Apple Corporation

5247 At Ease\$49.

◀ Macintosh PC Exchange

Display DOS disks on your desktop just like Mac disks. Subdirectories on the disk appear as folders and data files as documents. Format 3.5" low density disks in 720K DOS format, and 3.5" high density disks in 1.44MB DOS format. You can open, change, and save documents just like they were Mac files.

Apple Corporation

4609 PC Exchange\$69.

▶ System 7.1

New! Check out the new features. A new Fonts folder will resolve font ID conflicts automatically. Complex character sets such as Japanese are now supported by World Script. Also includes all the fixes now in the System 7 Tune-Up extensions.

Apple Corporation

5255 System 7.1 Personal Upgrade\$98.

5254 Group Upgrade\$278.

◀ WriteNow Workshop Bundle

A collection of 4 award-winning packages designed to improve your writing. Includes WriteNow 3.0, the fastest & easiest Macintosh word processor. WriteNow's size and speed make it the best choice for the Classic, LC, and PowerBook. Bundle includes American Heritage Dictionary, Correct Quotes, and Grammatik Mac for FREE! (\$500 Value)

T-Maker ◉

5308 WriteNow Workshop Bundle.....\$139.

5309 Competitive Upgrade – WriteNow
WorkshopBundle.....\$69.

▶ KidDesk

KidDesk was designed by early childhood experts to give kids creative control over their computing environment – without putting yours at risk. Parents select which programs appear on KidDesk from those installed on the hard drive. Then even young children can launch their own software programs and learn by playing with the KidDesk accessories.

Edmark

5182 KidDesk\$35.

◀ Shortlist

Combines the features of multiple productivity tools into one remarkably easy-to-use program! Time-management, phone dialing, mail-merging, and much more. Your data becomes more useful and accessible. Power-saving features allow 50% longer battery life – perfect for PowerBooks!

Brainchild Corporation ◉

4901 Shortlist\$98.

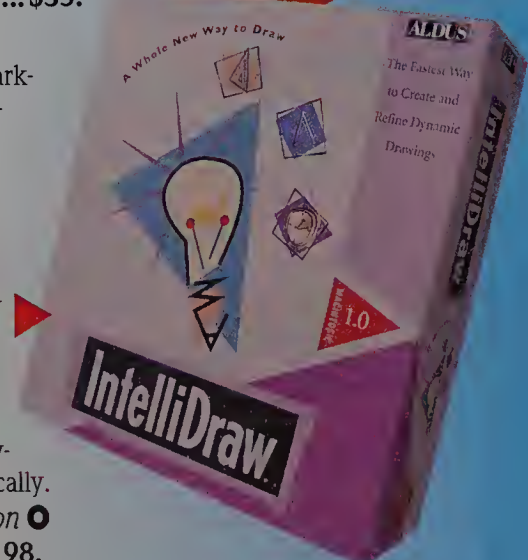
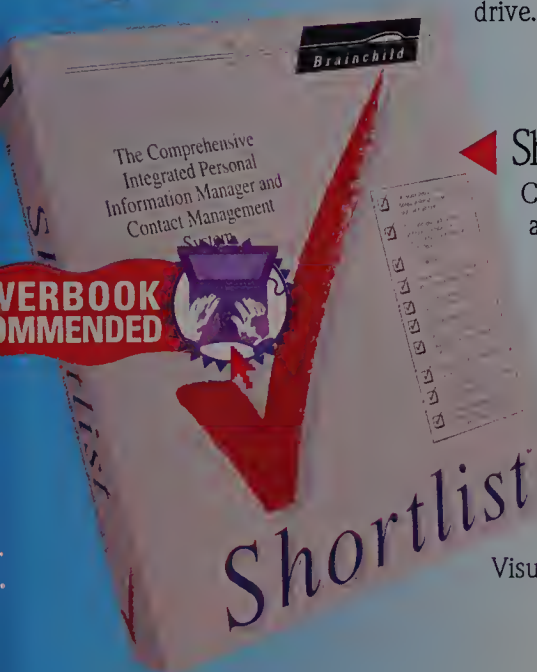
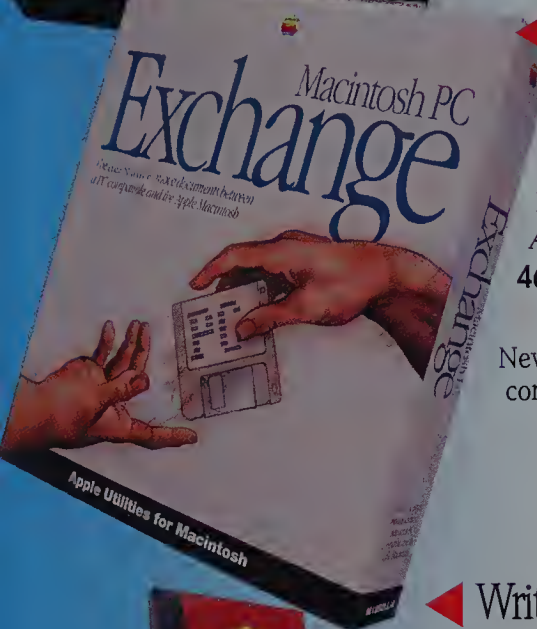
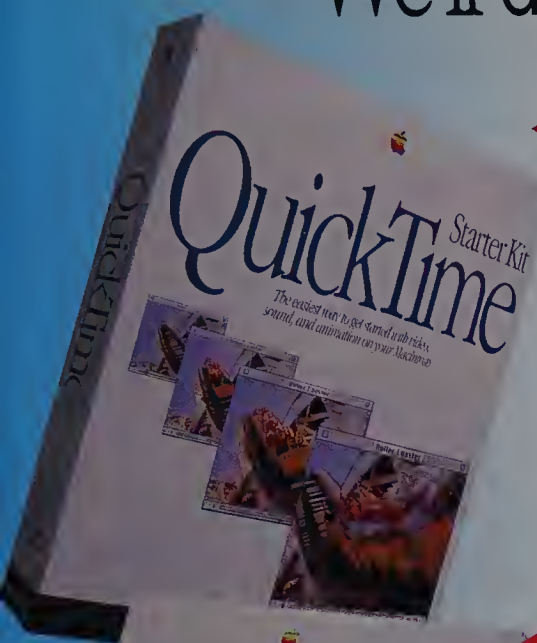
▶ IntelliDraw

IntelliDraw is an extraordinary new drawing program with intelligent features that give you an easy new way to visually experiment, refine, and draw your ideas. Visual "what-if" – innovative smart tools link graphics in your drawing so they respond to changes automatically.

Aldus Corporation ◉

4771 IntelliDraw\$198.

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted



Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

◉ 30-60 Day Money Back Guarantee

Mac'sPlace

"It's our knowledge that sets us apart."

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted



WorldLink

Dial up the Internet from your Mac without a dedicated line! You don't need Unix with WorldLink. You'll have access to over 13 million people and five different e-mail services – AppleLink, Compuserve, America On Line, The Well, and all the resources Internet has to offer.

InterCon

5195 WorldLink\$26.

NetVANTAGE II

Plan your network right. NetVANTAGE II is the only software available that allows you to evaluate proposed network configurations by building an on-screen "virtual network" and then "running" that network. You'll see user-perceived performance times, network bottlenecks, underutilized resources, and serious configuration errors before they happen.

Eclectic Software

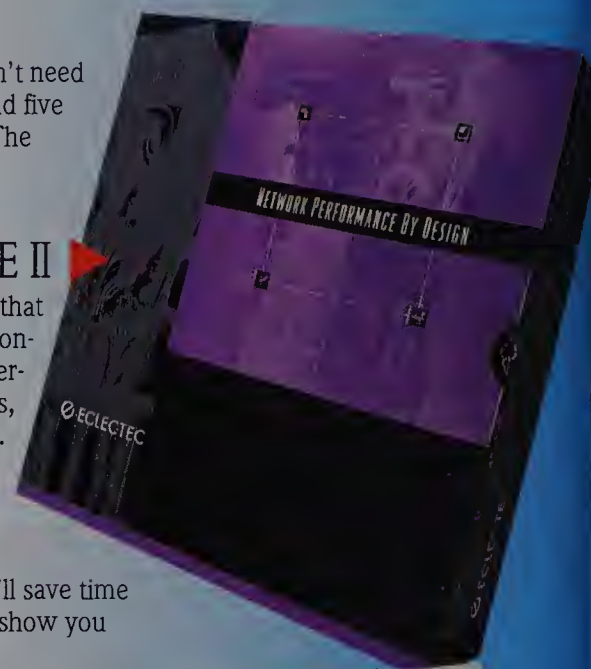
5164 NetVANTAGE II\$798.

MagicNet 4 Port Thin Ethernet Repeater

Hub your Macs on Thin Ethernet for half the cost of other repeaters. You'll save time when it comes to trouble shooting because each port has a signal light to show you where the problem lies. No more checking each connection on your backboned network.

Tutankhamon Electronics

5240 MagicNet 4 PORT Thin Ethernet Repeater\$448.



COPYright

COPYright is a transparent utility that completely replaces the Finder's copy functions. Copy files and folders in the background while still performing all Finder functions including launching applications and deleting files. COPYright also permits you to simultaneously copy multiple files to multiple destinations.

CSG Technologies

5147 COPYright\$29.
5253 COPYright Pro\$49.



Universal PowerCache

When you feel the need for speed, the award-winning PowerCache gives you the best combination of blazing-fast speeds (up to three times faster) and cost-effective prices. More important, it's guaranteed 100% compatible with all your software and hardware while running at full speed.

Daystar

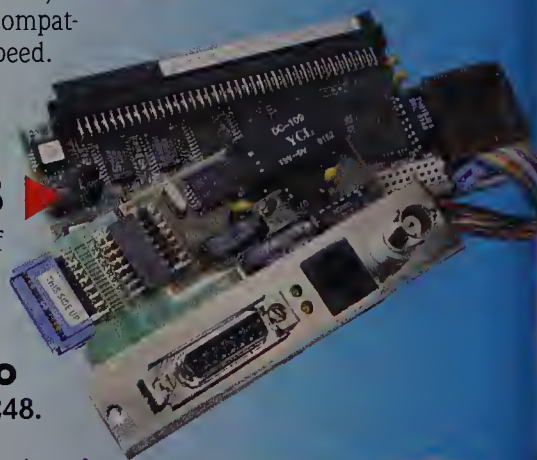
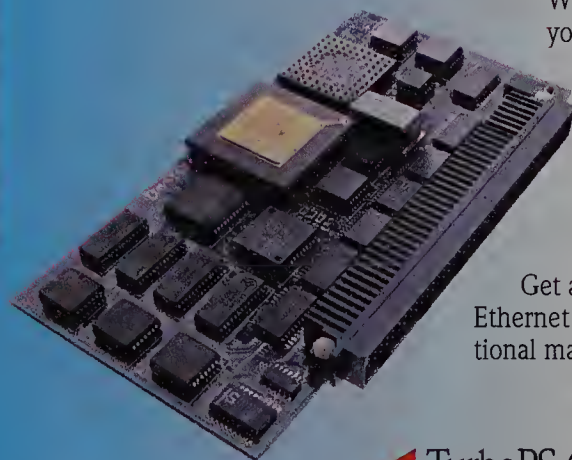
Universal PowerCacheSee Listings under Hardware

MACCON3

Get a 16K RAM Ethernet card for your Mac IIx with all three types of Ethernet – thick, thin, and 10BASE-T. Includes an FPU socket for an optional math co-processor and a PDS pass-through port for additional PDS cards. Five year warranty.

Asanté

3703 MACCON3\$248.



TurboPS/400P

The TurboPS/400P produces brilliant 400 by 400 dpi – almost twice the resolution of standard 300 dpi laser printers. Add to that Image Enhancement Technology to smooth characters, sharpen curves and angles, and eliminate jagged lines. It's ideal for the desktop publisher or business graphics user.

NewGen Systems

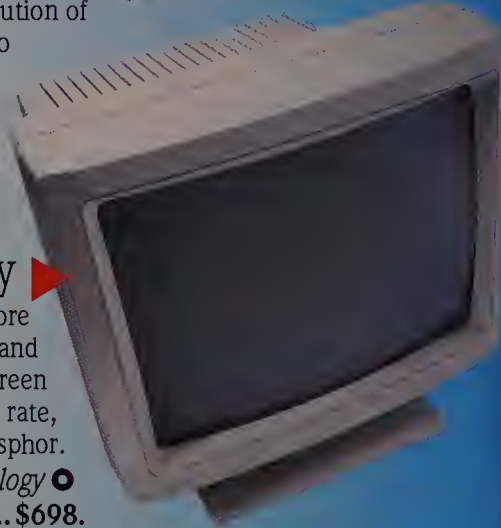
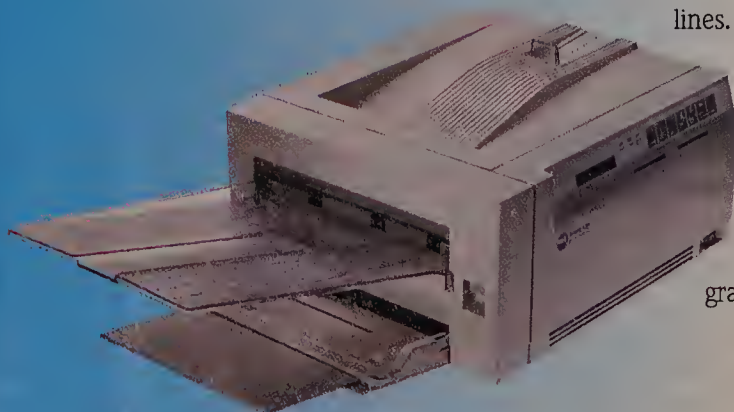
5259 TurboPS/400P\$1898.

Dual Page Mono Display

Perfect for multitasking or any job that's easier with more screen space – spreadsheets, desktop publishing, text, and graphics. This 19" two-page display provides 1024 x 828 screen resolution at 74 dpi, a 75 Hz refresh rate, and "Apple-standard" P104 phosphor.

Lapis Technology

4700 Dual Page Mono Display\$698.



Mac'sPlace

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

• 30-60 Day Money Back Guarantee

"We're Mac Compatible."

◀ DateBook/TouchBASE Bundle

DateBook combines calendar, scheduling, alarms, and to-do lists to keep track of all your daily activities. TouchBASE keeps all of your personal contacts at your fingertips. They work separately or together to help you manage your time and your contacts.

After Hours

5002 DateBook & TouchBASE Bundle \$98.

PowerMerge

Finally, a simple and automatic way to keep track of the latest version of your files when you use a PowerBook and a desktop Mac! Select an unlimited number of files, folders, or disks to be maintained and synchronized. Conflict notification if changes have been made to files on both Macs since updating.

Leader Technologies ●

5010 PowerMerge \$79.

◀ Disk Café

If you use drives from different manufacturers, you need to format them all with the same utility. Disk Café is a complete storage formatting utility that works with nearly every drive available. So it can prevent compatibility problems including data loss. And its advanced diagnostic tools detect and repair disk defects.

Bering Industries

5121 Disk Café \$45.

PowerBook Memory

Your actual memory requirements can easily be twice what the PowerBook provides. Newer Technology specializes in low power consumption PowerBook memory with a full line of RAM upgrade cards (even for the new PowerBooks) that are easy to install. Call for pricing on the complete line of Newer PowerBook memory for old and new PowerBooks.

5310 PowerBook 140/170 Psuedo-Static 6MB \$318

5311 PowerBook 160/180 DRAM 6MB \$428

◀ Berlitz Interpreter

Based on the popular dictionaries, the Berlitz Interpreter provides quick and accurate translations for anyone who encounters foreign words in correspondence, literature, or language studies. This word-for-word translation program allows you to instantly translate individual words between five major languages simultaneously: English, Spanish, French, German, and Italian.

Microlytics

5231 Berlitz Interpreter \$35.

Stuffit Space Saver/Stuffit Deluxe 3.0

Stuffit SpaceSaver provides complete on-the-fly compression. Increases disk space (with lightning speed) without effort on your part. Stuffit Deluxe is the most efficient compression product available. Solves all your compression needs, from archiving to transparent compression, and includes Stuffit SpaceSaver.

Aladdin Systems ●

4971 Stuffit Deluxe \$75.

4969 Stuffit SpaceSaver \$34.

◀ QuicKeys 2.1

QuicKeys is the ultimate desktop automation tool, designed to improve your desktop environment. It's easy for you to create and use hundreds of time-saving shortcuts. Any repetitive task you perform on your Mac can be done more easily and more consistently with QuicKeys.

CE Software ●

3388 QuicKeys 2.1 \$89.

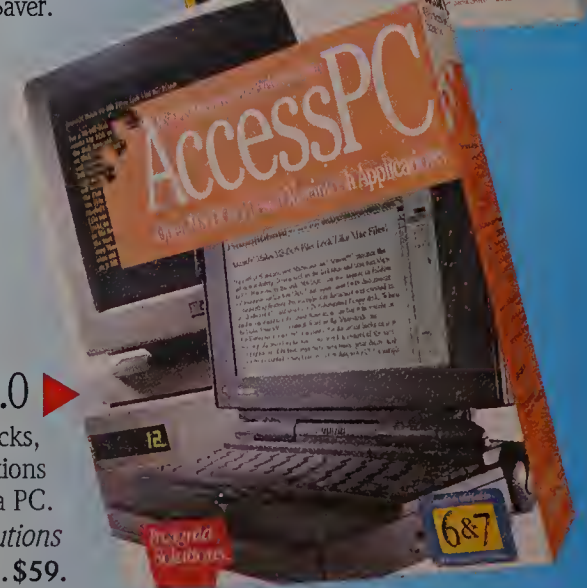
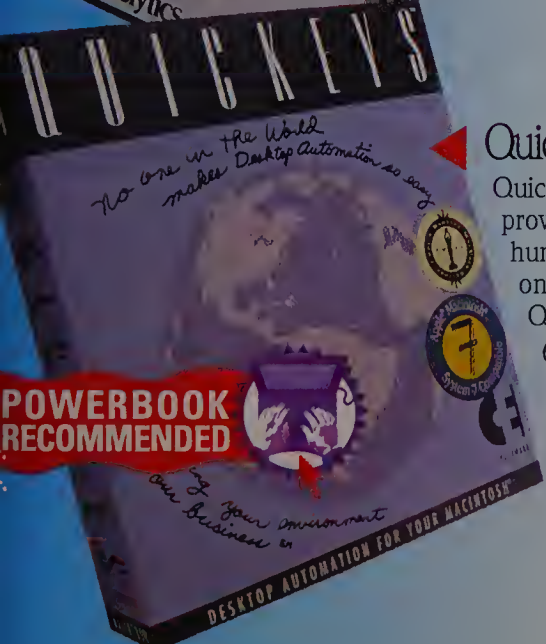
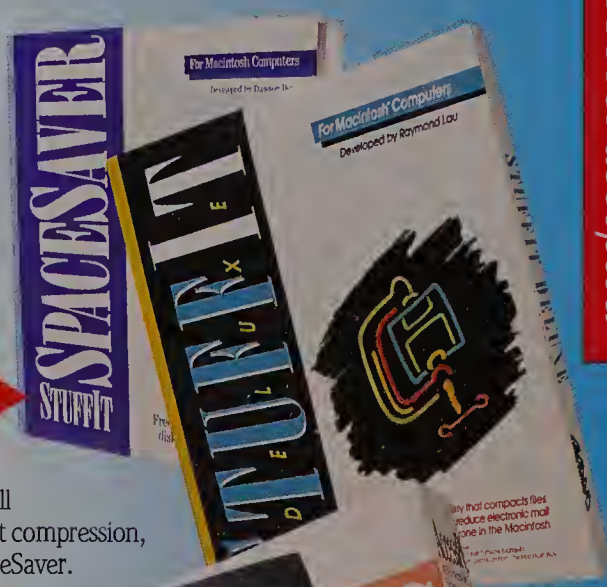
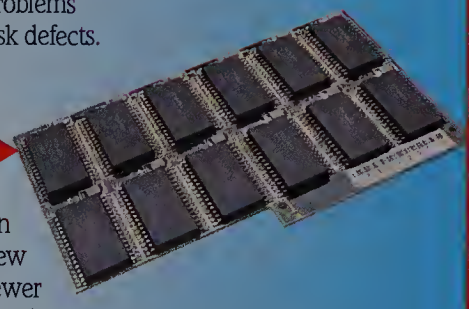
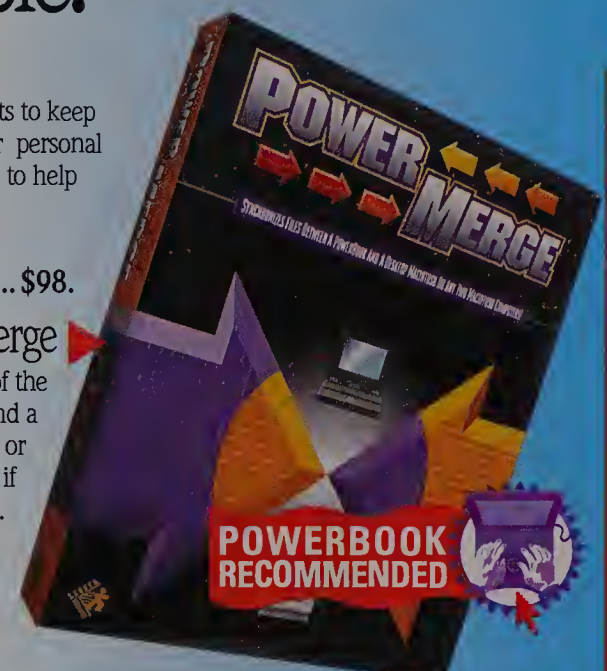
AccessPC 2.0

Just pop any DOS 3.5" disk in your drive and in a couple of clicks, you see Mac files. Edit, copy, save, and print in Mac applications and then return the file back to a PC.

Insignia Solutions

4693 AccessPC 2.0 \$59.

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted



Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

● 30-60 Day Money Back Guarantee

Mac'sPlace

"Order today, you'll have it tomorrow."

◀ Songworks

Compose music the easy way. Songworks not only prints your songs, it helps you to compose them. Play a tune on the computer keys or a MIDI keyboard, and watch Songworks handle the notation. It can suggest chords, generate tune ideas, and transpose, play, and print your song with melody, chords, symbols, and lyrics.

Ars Nova ●

7 5153 Songworks\$68.

Virex 4.0/single user & 10 pak

Virex detects and repairs files infected by all known Mac viruses. Then it prevents infection by continuously monitoring files and performing instantaneous repairs. It also keeps your network virus free with scheduled virus scans. Virex is updated frequently to combat new viruses, and all registered users receive one free update.

Microcom ●

5234 Virex 4.0/single user.....\$72.

5235 Virex 4.0 10 Pak\$498

◀ The Miracle Piano Teaching System

The first keyboard that teaches you how to play it! Makes learning even the basics a pleasure. Professional keyboard with 49 standard-sized velocity-sensitive keys, 128 digitized instruments and sounds, with full MIDI compatibility. Includes hundreds of songs and lessons, and full orchestral accompaniment.

The Software Toolworks

4072 The Miracle Piano Teaching System.....Call.

Act! for the Mac

This unique, integrated contact and calendar management solution handles your hectic schedule — automatically. Schedules calls, meetings, and to-do's. Generates a variety of written correspondence. Automatically and intuitively remembers every detail about each contact and activity past, present, and future. Also available for Windows!

Contact Software ●

4970 Act! for the Mac\$244.

5273 Act! for Windows.....\$258.

◀ Series 1 Photography Filters

Series 1 Photography Filters are software filters for Photoshop that emulate 35mm camera optical filters. Now you can generate optical effects other than the painterly effects now available. These filters are perfect for both the graphic artist and the photographer creating ads, brochures, advertising, and video presentations.

Andromeda Software

5161 Series 1 Photography Filters\$81.

macINTERCOMM

The first and only telecommunications program with true multitasking that offers completely invisible file transfers. With a scripting language of unprecedented power, full protocols, and terminal emulation, you'll agree that macINTERCOMM defines the new standard in telecommunications. Includes a SmartDial feature for traveling users and many more features.

Mercury Systems Inc. ●

5111 macINTERCOMM\$124.

◀ Algebra I Homework Tutor

"The best algebra tutorial program I have ever seen." (Macworld, 4-91) This program can generate problems or take problems from a student's own text book. Students are checked on every step toward the solution and can request a series of increasingly more specific hints when they have trouble.

Missing Link ●

5150 Algebra I Homework Tutor\$49.

Quicktel V.32bis FAXModem

The Quicktel 14,400 bps send/receive fax with 14,400 bps data modem combines speed with the quality and styling that wins raves. It includes CCITT V.32bis, V.42bis, and MNP 5. Speed through large files at rates from 14,400 to 57,600 bps when connected to a compatible modem. Lifetime warranty.

Logiccode

4176 Quicktel V.32bisFAX/Modem\$328.

Mac'sPlace

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

● 30-60 Day Money Back Guarantee

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted

NEW PRODUCT!

ACT!
for Macintosh

NEW PRODUCT!

ANDROMEDA
SOFTWARE
INC.

Series 1
Filters

User's Manual

NEW PRODUCT!

ALGEBRA I
HOMEWORK TUTOR

NEW PRODUCT!

"You can't sell Mac stuff unless you know Macs."

◀ Pax Imperia

Experience a universe of adventure and conquest. Rule an expanding empire while pursuing diplomatic relations with other emperors in neighboring star systems. Race for technological advancement and planetary discovery. Go where no Mac has gone before!

Changeling Software

4992 Pax Imperia\$34.

Capitalist Pig

New! Thought-provoking business simulation that lets you start and run a business in the privacy and safety of your own computer. Choose your company name, stock logo, product, and source of capital. Then set your business, financial, and marketing plans – the clock starts ticking, and you're in business!

Pluma

4640 Capitalist Pig\$35.

◀ MouseStick II

The new MouseStick II has optical control, five programmable buttons, and a padded handle with adjustable tension for unbeatable control. Works with all Mac games, even those with only keyboard control. Includes custom settings for most popular games.

Advanced Gravis ●

5079 MouseStick II\$58.

Aesopolis

Bring Aesop's fables to life with multimedia. This enchanting CD-ROM features a stunning virtual museum with thousands of splendid color canvases and high fidelity sounds. Double-clicking on one of the artworks reveals both screen-written and spoken versions of the fables.

Quantum Leap Technologies

4870 Aesopolis\$49.

◀ Hellcats

Hellcats is the most realistic flight simulator ever! In Missions At Leyte Gulf, you load your Hellcat with torpedoes, rockets, or bombs. Support a ground assault and neutralize enemy tanks and ground vehicles, or protect your fleet positions against sub attacks.

Graphic Simulations ●

4070 Hellcats Over the Pacific\$39.

4998 Missions at Leyte Gulf\$22.

Strategic Conquest & Spaceward Ho!

Spaceward Ho! 2.0 challenges you to colonize the galaxy against up to 20 computer players or human opponents on a network. Build fleets, research technologies, and conquer worlds. Strategic Conquest 3.0 is the latest version of the classic game of military strategy. Maneuver armies, planes, and boats to conquer every island and continent against the computer or a friend.

DeltaTao Software ●

2891 Strategic Conquest\$35.

4057 Spaceward Ho!\$35.

◀ Victor Vector & Yondo – The Vampire's Coffin

New! This adventure on CD-ROM integrates spectacular live action, sound, and music! Your mission is to retrieve Dracula's coffin while fending off evil beings. Truly interact with the play environment and use your creativity, skill, and intelligence to overcome obstacles.

Graphic Simulations ●

Victor Vector & Yondo

5168 The Vampire's Coffin\$40.

Big Business/Hole-in-One Miniature Golf

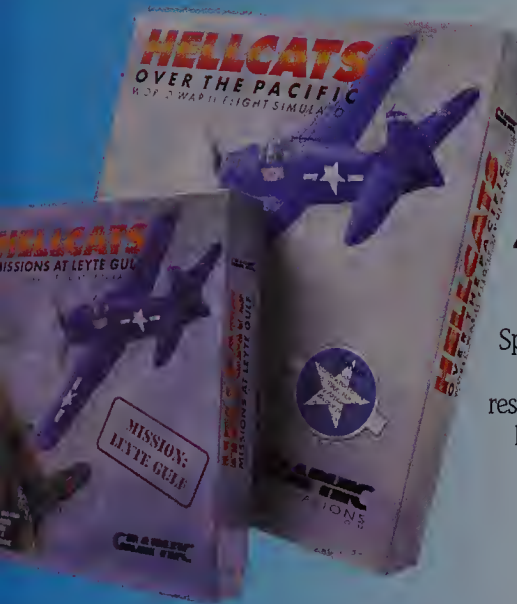
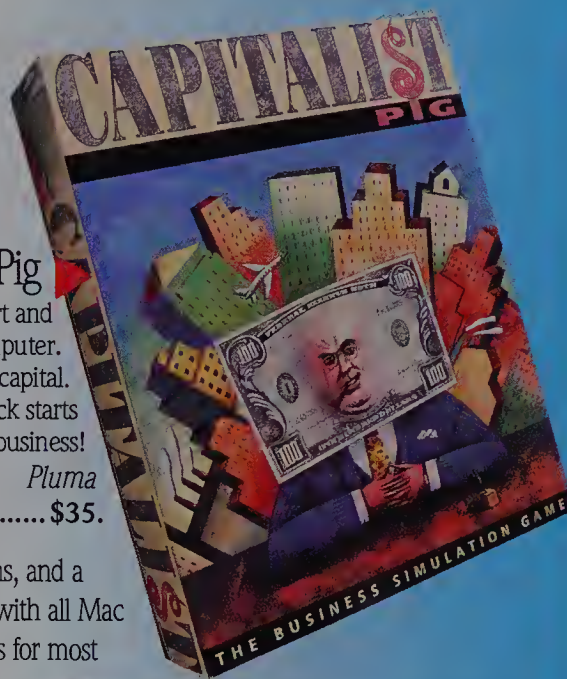
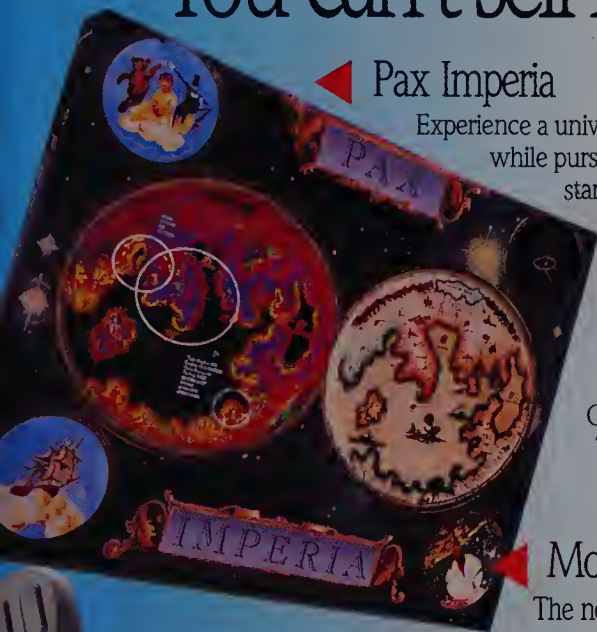
Ever wondered what running a big corporation is like? **Big Business** is a not-so-serious simulation where you initiate takeovers, start law suits, and more. **Hole-In-One Miniature Golf** combines superior sound, graphics, and playability with realistic ball play to give you the best miniature golf game made.

Digitek Software

5257 Big Business\$24.

4250 Hole-in-One Golf\$24.

1-800-367-4222 US & Canada • Visa/ MC/ AMEX/ Discover accepted



Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

● 30-60 Day Money Back Guarantee

Mac'sPlace

"What kind of place is Mac's Place? Call us and find out."

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted



Great hard drives and free utilities from Mac's Place.

The longer you own your Mac, the more you'll find yourself wanting more hard drive space. Our DataPlace Hard Drives, bundled with four free utilities, offer an elegant and reliable solution. These are the most reliable drives around, preformatted using the latest technology in formatting software. And they're fast too. The two removable drives feature mechanisms from Syquest, and they come with one free Syquest cartridge. All DP+ drives feature a sturdy steel case, two metal-clad SCSI connectors, an external fuse, and an easily accessible SCSI ID switch.

Each comes with manuals, cables, a two to five-year warranty,* and instant technical support from Mac's Place. And if your drive should need warranty repair, Mac's Place will give you a free loaner. All drives come with MacTools 2.0, DP Formatter Plus, SpaceSaver, and Kaboom! SE.

Drives are pre-formatted with DP Formatter Plus so they're ready to use right out of the box.

MacTools 2.0 is all the utility you'll ever need. It performs scheduled backups and disk analysis, speeds data access by defragmenting files, detects and cleans known Mac viruses, and much more. SpaceSaver compresses your files and folders so you have double the disk space! It compresses files an average of 50% and some graphics files as much as 98%. SpaceSaver automatically decompresses files when you open them and compresses them again when you're done.

You'll find a myriad of sounds to make your Mac fun with Kaboom! SE. Each sound can be played when you start up your computer, insert disks, empty the trash, and more! Get great drives with great utilities and all the support you need from Mac's Place.

Removable Syquest Hard Drives

4197 DP+ 44MB w/Cartridge	\$508
4198 DP+ 88MB w/Cartridge	\$698
2269 44MB Cartridges	\$69
3458 88MB Cartridges	\$107

DataPlace

External Hard Drives

5277 DP+ 42MB Quantum	\$328
5278 DP+ 85MB Quantum	\$422
5279 DP+ 127MB Quantum	\$488
5280 DP+ 170MB Quantum	\$548
5306 DP+ 240MB Quantum	\$784
4196 DP+ 425MB Quantum	\$1165
5290 DP+ 220MB Hewlett-Packard	\$942
5291 DP+ 402MB Hewlett-Packard	\$1254
5292 DP+ 1003MB Hewlett-Packard	\$2328
5293 DP+ 1025MB Hewlett-Packard	\$2108
5294 DP+ 1290MB (11.5MS) Hewlett-Packard	\$2972
5295 DP+ 1290MB (13.5MS) Hewlett-Packard	\$2488
5296 DP+ 1650MB Hewlett-Packard	\$3354
5297 DP+ 2000MB Hewlett-Packard	\$3728

Internal Hard Drives

5281 DP+ 42MB Quantum	\$238
5282 DP+ 85MB Quantum	\$332
5284 DP+ 127MB Quantum	\$398
5286 DP+ 170MB Quantum	\$458
5307 DP+ 240MB Quantum	\$694
4204 DP+ 425MB Quantum	\$1076
5298 DP+ 220MB Hewlett-Packard	\$852
5299 DP+ 402MB Hewlett-Packard	\$1164
5300 DP+ 1003MB Hewlett-Packard	\$2238

*Quantum drives come with a two-year warranty, Hewlett-Packard with a five-year warranty.

Mac's Place

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

• 30-60 Day Money Back Guarantee

"We make sure you get what you need."



Our SIMMs are affordable and easy to install.

Today's Mac user often wants to move quickly between several programs running at the same time. For those using memory-intensive applications, speeding up task processing is also important. Mac's Place makes it all easy - and affordable - with a variety of SIMMs (Single Inline Memory Modules).

You won't have any trouble installing a SIMM yourself, thanks to our easy-to-understand, illustrated guidebook. If you do get stuck, call our toll-free number for instant help. Every Mac's Place sales consultant has experience installing SIMMs in his or her own Mac, and will be happy to walk you through the procedure. All our SIMMs have lifetime warranties and they're manufactured by reputable companies like Toshiba, Fujitsu, Siemens, and Micron.

Now, the question is, which SIMM do you need and how many? Call our Mac consultants. They can answer your questions so you'll get the best performance out of your Mac. Just let us know what kinds of applications you're running, and we'll make sure you get what you need - a faster, more productive Mac.

Mac's Place

SIMM/Memory

PowerBook Memory 140/170

3966 4MB Pseudo-Static\$198.

3965 6MB Pseudo-Static\$298.

PowerBook Memory 100

3963 4MB Pseudo-Static\$235.

3964 6MB Pseudo-Static\$338.

Single Inline Memory Module (SIMM)

3179 1MB 80 ns\$32.

3701 2MB 80 ns\$65.

2738 4MB 80 ns\$120.

4754 16MB 80 ns (High Profile) Call.

4755 16MB 80 ns (Low Profile) Call.

2770 FX 4MB 80 ns\$138.

2739 FX/NTX 1MB 80 ns\$42.

Video RAM for LC Quadra

4337 VRAM 256K\$37.

4338 VRAM 512K\$59.

Fast speed, low price. Great fax/modem.



State-of-the-art PC communications capability just got amazingly more affordable. On the data side, the SupraFAXModem V.32bis features 14,400 bps communications with up to 57,600 bps throughput with another modem that supports both V.32bis and V.42bis data compression. All this speed means that you'll save time on-line and money spent on connect charges and long-distance calls! And of course, the SupraFAXModem V.32bis also maintains downward compatibility with the millions of V.32, 2400, 1200 bps modems already in use. With any fax software that supports Class 1 or Class 2 fax commands, you'll be able to send and receive high-quality faxes without ever leaving your desk. And a status display with 25 different messages keeps you clearly and instantly informed about what your state-of-the-art telecomputing center is up to. SupraFAXModems are highly recommended by such authorities as *Macworld* and Berkeley Macintosh User's Group, among others.

Supra Corp.

4017 SupraFaxModem V.32bis MacPac\$348.

IT'S EASY TO ORDER!

ORDERING INFORMATION

- Call 1-800-367-4222 anywhere in the USA or Canada. Call (206) 883-8312 for international orders.
- Fax your order to 206-881-3090.
- Mail your order to 8461 154th NE, Redmond, WA 98052.
- For electronic orders, use CompuServe (76635,660), GEnie (MACSPPLACE), or America Online (Mac's Place).
- Mac's Place uses CE Software's QuickMail to check our mail regularly.

ORDERING HOURS

- Mac's Place is open from 6 a.m. to 10 p.m. M-F Pacific Standard Time, and 6 a.m. to 6 p.m. on weekends. (For you East Coasters, this means you can call us until 1 a.m. weekdays and still receive your in-stock item that morning!)

PAYMENT OPTIONS

- VISA, MasterCard, American Express, OPTIMA, and Discover Card gladly accepted.
- Your credit card is never charged until your product ships.
- Most personal and company checks are approved quickly to ensure immediate shipment. For non-standard checks and checks over \$1,000, allow ten working days for clearance.
- Government, school, and institutional P.O.s clear immediately. Corporate P.O.s are subject to credit approval for first order.

SHIPPING INFORMATION

- All in-stock items ship same-day, (barring system failure, etc.) to your doorstep, for just \$3 (USA) via

Airborne Express overnight service. Rural locations may require an additional day for delivery. Areas not serviced by Airborne Express will be sent via Priority Mail. Our \$3 shipping charge includes insurance at no extra charge.

- When a partial order is shipped, we pay freight on additional shipments.

INTERNATIONAL ORDERS

- Call 206-883-8312 for our international sales line.
- We ship throughout the free world via Airborne Express International.
- International orders will be charged full shipping rates.
- Mail, fax, or electronic orders gladly accepted.

RETURNS

- All products carry a 120-day limited warranty from Mac's Place.
- Defective software is replaced immediately with like items. Defective hardware items repaired or replaced at our discretion.
- Some hardware items carry one-, two-, or five-year warranties.
- Products with the symbol carry a manufacturer's 30- or 60-day Money Back Guarantee.

Like all aspects of Mac's Place operation, this ad was entirely assembled using Macintosh technology. No paste-up. No stripping. No kidding. ©1992 Mac's Place, Inc. Mac's Place and the Mac's Place logo are trademarks or registered trademarks of Mac's Place, Inc. All other marks remain the property of their respective companies. All prices and promotions are subject to change without notice. Not responsible for typographical errors.

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

• 30-60 Day Money Back Guarantee

Mac's Place

"You can get great prices and great service."

**POWERBOOK
RECOMMENDED**

DayMaker 2.0

New version! Daymaker 2.0 is faster and filled with new features. A Recurring Events function schedules upcoming events with more flexibility. The "To Do" view organizes "to do" items. Reports can be previewed before printing and will be sharper with integrated DYNoPAGE.

Pastel Development

5261 DayMaker 2.0.....\$82.

Bernoulli MacTransportable 90 PRO

Get all the storage reliability you'd expect from Bernoulli for 40 percent less! The new MacTransportable doesn't require an interface kit. Everything you need to get up and running is in the box including a 90MB cartridge.

IOMEGA

5012 Bernoulli MacTransportable 90 PRO\$499.

DupLocator

New! The first software available for locating duplicated files. Organizes, catalogs, and even builds disks from files scattered across multiple volumes, networks, or your entire floppy library! Features include 3D buttons, floating palettes, Balloon Help, universal file coloring, disk serialization, SCSI mounting, file compression, plus a whole lot more.

Midnight Software

4527 DupLocator\$62.

TimesTwo

TimesTwo actually makes your hard disk bigger rather than making your files smaller! A one-time installation converts your hard disk to twice its original size in minutes, leaving your data unchanged. It's completely compatible with all Mac software and works with all SCSI and erasable optical disks.

Golden Triangle

5233 TimesTwo\$99.

SNOOPER w/Norton Utilities

Find problems fast with Snooper, the revolutionary suite of hardware diagnostic and testing tools. And for a limited time, get Norton Utilities For Mac FREE. Snooper is easy-to-use, powerful, and saves you time and money. No set of Mac utilities is complete without Snooper, the hardware diagnostic.

Maxa Corp.

4260 Snooper w/Norton\$128

4261 Snooper w/NuBus card....\$168.

Simply Accounting (ACCPAC)

Simply Accounting contains everything you need to get up and running in a flash. The primer walks you through basic accounting principles, and includes a real-life tutorial with sample data. Yet it has all the practical, powerful features you need to grow a successful business. Reports, General Ledger, Accounts Receivable/Payable, Payroll, and much more.

Computer Associates

1366 Simply Accounting.....\$132.

Sketcher 1.0

Sketcher brings revolutionary natural-media and imaging technology to grayscale graphics. Create realistic natural-media effects, duplicating traditional tools and textures. Sketcher includes dozens of brushes, pens, chalks, even paper grains and image processing tools.

Fractal Design

5052 Sketcher.....\$98.

Painter 1.2/6x9 Tablet

Personal Publishing's painting product of the year! Painter delivers real natural media effects, brushes, pens, oils, watercolors, and surfaces (22 included). The Wacom tablet has the premier pressure sensitive stylus. A truly great combination.

Fractal/Wacom

4694 Painter 1.2/

3027 6x9 Digitizing Tablet (both).....\$698.

Mac'sPlace

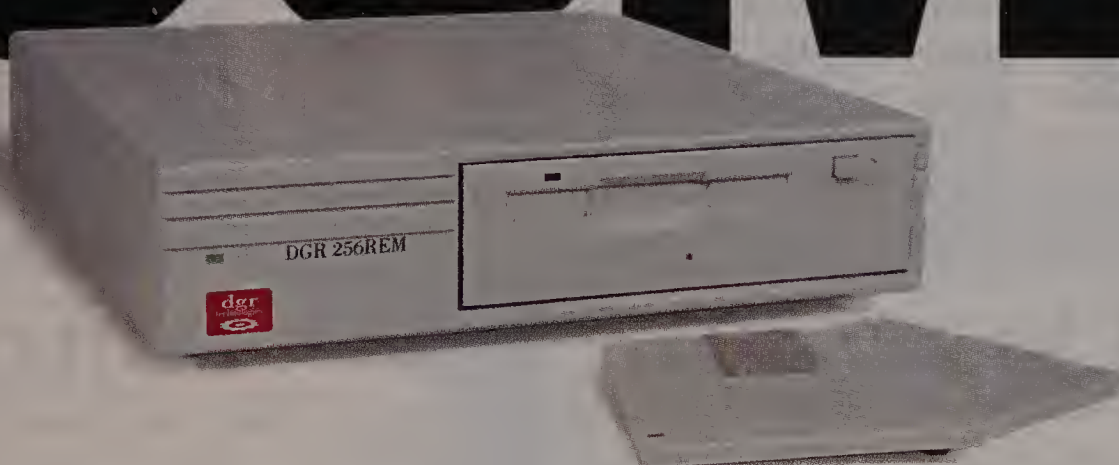
Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

30-60 Day Money Back Guarantee

Circle 209 on reader service card

1-800-367-4222 US & Canada • Visa/MC/AMEX/Discover accepted.

256MB



Twice the Storage! Twice the Value!

The New DGR Technologies 256MB 3.5 Inch Removable Optical Drive!

"The Price/Performance Leader"

-DGR 128MB REM, MacUser Magazine, 3.5" Optical Hard Drive Review, July 1992

MacUser
LABS
Bottom Line Pick

From the company that made optical storage affordable comes the new **DGR 256REM**, offering more removable data storage than ever before in a 3.5 inch magneto-optical format. The 256REM packs **256 megabytes** of data on 3.5 inch cartridges - double the capacity of existing 128MB optical drives. That's 256MB of fast storage for storing scanned images, quicktime movies, audio files, or archiving critical data. And, of course, when you use up all 256MB, simply insert another **inexpensive** 256MB cartridge and you're ready to go.

The DGR 256REM boasts over a 50 percent increase in **performance** over current industry standards for magneto-optical technology. With an average access time of 35ms and a rotational speed of 2400rpm, all-out performance translates into transfer rates up to 1,228kb per second.

The new 256REM can read *and* write to current 3.5 inch optical drives making it **compatible** with your existing 128MB formatted data. It also conforms to both ANSI and ISO standards. Multiple cartridges can be formatted for different machines, making it a **versatile** player in a multi-platform environment.

DGR also manufactures the high performance 128REM Turbo optical and the **economical** 128REM optical. All DGR drives come ready to use - complete with cartridge, one year warranty, toll-free technical support, and a 30-day money back **guarantee**. DGR Price. DGR Performance. DGR Reliability. DGR Technologies.

► **DGR 256REM**
256MB MOST Mechanism 1.23Mb/s
35ms Access. 9ms Short Seek

\$1699

► **DGR 128REM**
Turbo Portable
128MB Epson Mechanism 768Kb/s
34ms Access. 6ms Short Seek

\$1299

► **DGR 128REM**
128MB MOST Mechanism 512Kb/s
42ms Access. 9ms Short Seek

\$1199

128MB Cart 256MB Cart
\$59 \$99



AppleLink: DGR



DGR Technologies, Inc.

800-235-9748

To Order Call TOLL FREE Monday-Friday 8am to 7pm CST
1219 West Sixth, Suite 205 • Austin, Texas 78703 • 512/476-9855 • Fax 512/476-6399
We accept MC, Visa, Discover, Pre-Paid, COD, & Wire Transfer Orders.



FWB

FWB's Hard Disk ToolKit
Personal Edition Included



One Year
Warranty



30-Day Money
Back Guarantee

Circle 53 on reader service card

1-800-258-2650

FEATURING



SyQuest®
REMOVABLE
TECHNOLOGY

ClubMac 44mb	SQ555	Actual MAC Capacity: 42mb	\$399
ClubMac 88mb	SQ5110	Actual MAC Capacity: 84mb	\$509
ClubMac Dual 44mb			\$749
ClubMac Dual 88mb			\$919
ClubMac Dual 44mb & 88mb*			\$889
Internal 44mb for Quadra 900 / 950			\$389
Internal 88mb for Quadra 900 / 950			\$499
44mb Cartridge (10 pack-\$62 each)			\$64
88mb Cartridge (10 pack-\$96 each)			\$99

SyQuest Drives include a TWO Year Warranty, one cartridge & necessary cables, SCSI Director™ v.2.4 Formatting Utility. * Includes (1) 44mb & (1) 88mb cartridge • SyQuest Cartridges carry a ONE Year Warranty.

NOW
AVAILABLE
SyQuest Drives
for
Quadra 900/950

NEW!



New
ELS Series

Quantum

Unformatted Capacity	Model	Product Description	Actual MAC Capacity	Internal	External
42mb	ELS42	3.5" Low Profile 19ms	40mb	\$185	\$245
52mb	LPS52	3.5" Low Profile 9ms	49mb	\$209	\$269
80mb	Go-Drive	2.5" Low Profile 9ms	80mb	\$329	\$429
85mb	ELS85	3.5" Low Profile 17ms	82mb	\$269	\$329
105mb	LPS105	3.5" Low Profile 9ms	100mb	\$319	\$329
120mb	LPS120	3.5" Low Profile 10ms	116mb	\$349	\$409
120mb	Go-Drive	2.5" Low Profile 9ms	120mb	\$459	\$559
127mb	ELS127	3.5" Low Profile 19ms	124mb	\$329	\$389
170mb	ELS170	3.5" Low Profile 19ms	160mb	\$385	\$445
240mb	LPS240	3.5" Low Profile 10ms	234mb	\$629	\$689
425mb	PRO425	3.5" Half Height 8ms	406mb	\$899	\$959

ELS drives have 32K cache, low power consumption, MTBF of 250,000 hrs and TWO Year Warranty. LPS drives have 64K - 256K cache, MTBF of 250,000 hrs, and TWO Year Warranty. PRO drives have 256K cache, MTBF of 150,000 hrs, and TWO Year Warranty. Go-Drives have 32K cache, low power consumption, MTBF of 150,000 hrs, and ONE Year Warranty.

5 YEAR
WARRANTY

FUJITSU

Unbeatable Quality and Performance

Unformatted Capacity	Model	Product Description	Actual MAC Capacity	Internal	External
425mb	M2623SA	3.5" Half Height 9ms	405mb	\$969	\$1029
520mb	M2624SA	3.5" Half Height 9ms	496mb	\$1035	\$1095
1.2GIG	M2266	5.25" Full Height 14.5ms	1029mb	\$1649	\$1749

Fujitsu 3.5" high performance SCSI disk drives feature:

• 10MB/s data transfer rate • 6.82 ms ave. latency • 240 KB read-ahead cache buffer

Fujitsu 5.25" high performance SCSI Winchester disk drives feature:

• Embedded SCSI interface • Up to 14.5 ms positioning time • Up to 4.8 MB/sec SCSI data transfer rate

Featuring ...
the Elite Series

Seagate

Unformatted Capacity	Model	Product Description	Actual MAC Capacity	Internal	External
248mb	ST3283	3.5" Low Profile 12ms	235mb	\$659	\$719
420mb	ST1480N	3.5" Half Height 14ms	406mb	\$1059	\$1119
525mb	ST1581N	3.5" Half Height 14ms	500mb	\$1179	\$1239
1.2GIG	ST11200N	3.5" Half Height 10.5ms	1000mb	\$2119	\$2179
320mb	ST4385N	5.25" Full Ht W-R 10.7ms	315mb	\$1249	\$1349
645mb	ST4766N	5.25" Full Ht W-6 15.5ms	632mb	\$1285	\$1385
645mb	ST4767N	5.25" Full Ht W-R II 11.9ms	634mb	\$1529	\$1629
1.2GIG	ST41200N	5.25" Full Ht W-7 15ms	989mb	\$1699	\$1799
1.6GIG	ST41651N	5.25" Full Ht W-8 15ms	1350mb	\$2029	\$2129
2.1GIG	ST42100N	5.25" Full Ht W-9 12.9	1900mb	\$2949	\$3049
1.6GIG	ST41600N	5.25" Full Ht Elite-1 11.5ms	1307mb	\$2399	\$2499
2.4GIG	ST42400N	5.25" Full Ht Elite-2 11ms	2050mb	\$3129	\$3229
3.4GIG	ST43400N	5.25" Full Ht Elite-3 11ms	2750mb	\$4399	\$4499

Seagate Drives include a ONE Year Warranty.

Maxtor®

Unformatted Capacity	Model	Product Description	Actual MAC Capacity	Internal	External
120mb	7120XT	3.5" Low Profile 15ms	121mb	\$335	\$395
207mb	7213	3.5" Low Profile 15ms	202mb	\$489	\$549
330mb	LXT-340	3.5" Half Height 15ms	324mb	\$749	\$809
535mb	LXT-535	3.5" Low Profile 12ms	510mb	\$1099	\$1159
645mb	XT-8760S	5.25" Full Height 16.5ms	639mb	\$1239	\$1339
1.2GIG	PO-12S	5.25" Full Height 13ms	997mb	\$1575	\$1675
1.7GIG	PO-17S	5.25" Full Height 13ms	1433mb	\$1845	\$1945

Maxtor 3.5" Drives include a ONE Year Warranty. Maxtor 5.25" Drives include a TWO Year Warranty.

Call
for more
information

ClubMac Optical Drives

Model	Capacity	Description	Seek	External
CMO-OD3000	Teac	128mb 3.5" Half Ht	45ms	\$1179
CMO-LF3004	Panasonic	128mb 3.5" Half Ht	45ms	\$1169
CMO-3100E	Ricoh	128mb 3.5" Half Ht	45ms	\$1249
CMO-3051E	Ricoh	594/652mb 5.25" Full Ht	28ms	\$2695
CMO-5030E2	Ricoh	594/652mb 5.25" Full Ht	66.7ms	\$2149
128mb Cartridge	3.5" Single Sided			\$39
594/652mb Cartridge	5.25" - 512/1024 bytes/sec			\$99

All ClubMac Opticals include ONE cartridge and ONE Year Warranty.

ClubMac TAPE BACKUP Systems

Capacity	Model	Description	Media	Access Time	External
155mb	Teac MT2ST/N50	Analog	CT600N	5-7 MB/s	\$489
600mb	Teac MT2ST/F50	Analog	CT600F	7-10MB/s	\$699
2.0GIG	ARDAT	DAT, DDS	4mm	10-15 MB/s	\$1249
2.0GIG	WangDAT 1300XL	DAT, DDS	4mm	10-15 MB/s	\$1329
3-5GIG	WangDAT 3200	DAT, DDS-DC	4mm	10-15 MB/s	\$1549
2.0GIG	HP 35470A	DAT, DDS	4mm	10-15 MB/s	\$1389
3-5GIG	HP 35480A	DAT, DDS-DC	4mm	10-15 MB/s	\$1819
2.2GIG	Exabyte EXB-8200	Digital/Helical	8mm	10-15 MB/s	\$1949
5.0GIG	Exabyte EXB-8500	Digital/Helical	8mm	10-15 MB/s	\$3229

Includes RetroSpec v.1.3c Backup Software, One Tape and ONE Year Warranty

**NEW
Lower Prices**

DAYSTAR
DIGITAL



PowerCache

(Classic, SE, LC, SE/30, II, IIfx, IIsi, IICI)

	w/o FPU	w/ FPU
16 MHz PowerCache	\$399	\$459
33 MHz PowerCache	\$539	\$659
40 MHz PowerCache	\$749	\$909
50 MHz PowerCache	\$1079	\$1319
Equalizer LC	\$169	\$239
PowerCache Adapter	\$40	

* Cache Adapter not included

Cache Cards

FastCache IIsi	\$279
FastCache IIsi with 68882	\$349
FastCache IICI	\$215
FastCache 040 (128K - Q700/900)	\$259
FastCache 040 (128K - Q700/900/950)	\$399
Expansion Boards for Mac LC & IIsi	
DualPort IIsi	\$165
PowerMath LC	\$115

ASANTÉ Networking

MACCON+ 64K Thick/Thin or Thick/10BaseT	\$159
MACCON 3 64K Thick/Thin/10BaseT (Most MACs)	\$209
Friendly Net Adapter Thick or Thin or 10BaseT	\$79
EN/SC10T SCSI Ethernet with 10BaseT	\$249
EN/SC10TPB SCSI Ethernet with 10BaseT for PowerBooks	\$309
EN/SC SCSI Ethernet w/ Thick, Thin, 10BaseT	\$349
EN/SCPB SCSI Ethernet w/ Thick, Thin, 10BaseT for PowerBooks	\$285
10THub/12 - 12port 10BaseT Hub	\$499
10THub/8 - 8port 10BaseT Hub	\$249
AH1012 - 12port Smart Hub (Upgradable to SNMP)	\$825
AH1701 - 12port Smart Hub with SNMP	\$949
AH1702 - AH1012 W/Asante VIEW SW	\$949
AH1704 - AH1701 W/Asante VIEW & SNMP	\$1269

Macintosh Memory

PowerBook 140/170	Macintosh Memory	Mac IIfx
2MB Memory Module \$117	1mb X 8 - 80ns \$28	1mb X 8 - 80ns \$30
4MB Memory Module \$195	2mb x 8 - 80ns \$64	4mb X 8 - 80ns \$122
6MB Memory Module \$229	4mb X 8 - 80ns \$99	16mb X 8 - 80ns \$549
Quadra 950	16mb X 8 - 80ns \$459	Video (Q700/900)
16mb Module \$459		256K VRAM \$29
256 VRAM \$29		

Modems • Modems • Modems

SupraFAXmodem	PSI
14,400 Baud FAX/MODEM V.32bis, V.42bis with microphone and faxSTF & cables	ComStation1 (24/96/48 S/R fax modem) \$159
VIVA Fax Modem \$349	ComStation5 (14,400 S/R fax modem) \$515
14,400 Baud, FAX/MODEM, V.32bis, V.42bis with Quicklink II & cables	PowerModem (24/96/48 S/R fax modem) \$199
Telebit Worldblazer \$669	PowerModem 10-42 \$249
14,400 Baud, 19,200 Baud - PEP, V.32bis, V.42bis	(24/96 S/R fax modem V.42bis, MNP 10)
	Global Village (for PowerBooks)
	PowerPort Bronze (24/96 S/R fax modem) \$215
	PowerPort Silver (96/96 S/R fax modem) \$435
	PowerPort Gold (14,400 S/R fax modem) \$595
	TelePort Bronze/Silver/Gold \$199 / 349 / 435

Call ClubMac for more Modem products

radius

Accelerators	Radius I/F Cards/Multimedia
Radius Rocket 25i \$1199	VideoVision \$2009
Radius Rocket \$1599	PrecisionColor 8 I/F \$499
Radius Rocket 33 \$1999	PrecisionColor 8X I/F \$729
Radius Displays	PrecisionColor 8XJ I/F \$495
PrecisionColor Display/20 \$2759	PrecisionColor 24X I/F \$1629
PrecisionColor Display/19 \$2089	PrecisionColor 24XP I/F \$495
Color Pivot \$1289	PrecisionColor 24XK I/F \$829
Monochrome Pivot \$699	Color Pivot I/F \$505
Full Page Display \$579	Monochrome Pivot I/F \$249
Two Page Display/19 \$899	Two Page Display I/F \$395
Two Page Display/21 \$1159	PowerView \$499

SUPERMAC™

Digital Video Boards / Acceleration

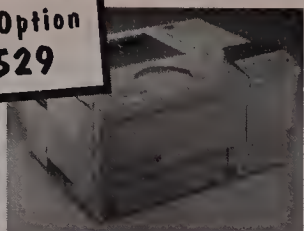
Video Spigot (NuBus / IIsi / LC)	\$379/339/255
VideoSpigot Pro (NuBus or IIsi)	\$1095
Spigot and Sound NuBus	\$489
Spigot and Sound Pro	\$1179
ThunderStorm	\$845

• Graphics Cards 5 Year Warranty
• Monitors 3 Year Warranty

Graphic Displays

SuperMatch 20" T Multimode Trin.	\$2525
SuperMatch 20" Dual Mode Trin.	\$2499
SuperMatch 20" Color	\$1515
21" Platinum (Black and White)	\$999
Platinum 20 Full-Page	\$929
Graphic Cards	
Thunder/24	\$2345
Thunder/8	\$1175
Spectrum/24 Series III	\$845
Spectrum/8-24 PDQ	\$829
Spectrum/8 Series III	\$419

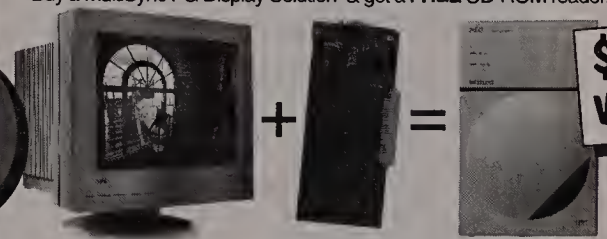
PostScript
Fax Option
\$529



NEC
Silentwriter Model 95
\$1378

- Adobe PostScript Level 2
- Auto Interface Monitoring • 300 dpi
- 6 ppm • 35 fonts • 2 MB RAM, up to 5MB • AppleTalk, Serial, Parallel

One Great Solution Deserves Another
Buy a MultiSync FG Display Solution & get a FREE CD-ROM reader!



**FREE
CD-ROM
OFFER**

**\$449
VALUE!**

NEC's MultiSync FG Display Solution is a combination of the MacFG 8X or 24X Display Interface card and one of the new MultiSync 4FG, 5FG or 6FG monitors. With its sleek design and fast access times, the NEC CDR-37 will get you into the world of CD-ROM -- so you can take advantage of multimedia and other exciting new CD-ROM based information, entertainment and education applications.

MultiSync Monitors	NEC CD-ROMs
MultiSync 3FGx (15") \$629	CDR-74 Gallery \$629
MultiSync 4FG (15" - AccuColor) \$759	CDR-37 Gallery \$429
MultiSync 5FG (17" - AccuColor) \$1329	CDR-74 with Mac I/F \$569
MultiSync 6FG (21" - AccuColor) \$2399	CDR-37 with Mac I/F \$389
Mac FG 8X Interface \$719	
Mac FG 24X Interface \$1519	

* Includes Mac Adapter & TWO Year Warranty

RASTEROPS®

THE ART & SCIENCE OF COLOR™

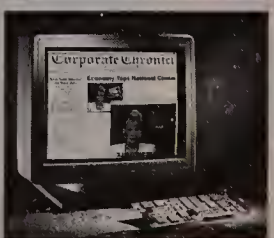
Color Display Adapters	Custom Color Solutions
RasterOps ProColor 32 \$3195	
RasterOps 24XLi \$1939	
RasterOps PaintBoard 24 \$1549	
RasterOps PaintBoard Li \$829	
RasterOps 24Mx / MxQ \$1165	
RasterOps 24Sx \$619	
ColorBoard 264/SE30 \$699	
RasterOps 8XLi \$929	
RasterOps 8XL \$465	

Multimedia	Custom Color \$4655
RasterOps 24XLTV \$2699	20" System
MediaTime \$1549	• RasterOps 20T
RasterOps 24STV \$779	Multiscan Trinitron
RasterOps VideoTime \$1165	• RasterOps 24XLi
RasterOps 24MxTV \$1699	
Video Expander II NTSC \$469	

Graphic Displays
21" Color (2168) \$2799
20 Multimode Color (2085H) \$1525
20T MultiScan Trin. (2075M) \$2699
21" Mono/Gray Scale (2110) \$999
15" Mono/GS Portrait (1510) \$505
ClearVue/SD 21 (2570) \$1399
16" Sweet 16 Color (1649) \$1165



**\$200 Rebate
Custom Color
Solutions**



Custom Color \$4345
21" System
• RasterOps 21" Color Monitor
• PaintBoard 24

Sales, Info, Int'l
(714)768-8130

Tech Support
(714)768-1490

24-Hr Fax Line
(714)768-9354

ClubMac
3 Musick • Irvine, CA 92718
1-800-258-2650

1-800-258-2650

1-800-258-2650

1-800-258-2650

Great Prices. Priceless Support!

Quantum Quality, Really Great Price—85ELS \$299



Quantum's new ELS drives deliver a long, trouble-free life. ELS power requirements make it compatible with internal installation in Mac Classics, LCs and si models as

well as most other Macs. ELS drives deliver the best price/performance ratio available in low to medium capacity drives. Get Quantum's two-year warranty and APS' great support.

Quantum

MB	INTL	EXTL
120	\$399	\$479
240	629	699
425	929	999
525*	1149	1219
1225*	1899	1969

Go•Drives

80	\$349	\$499†
120	469	599†

ELS Drives

42	\$199	\$279
85	299	369
127	349	419
170	399	469

Fujitsu

MB	INTL	EXTL
520	\$1149	\$1239
1.2G	1699	1799
2.0G	2595	2695

Includes Fujitsu's 5-Year Warranty

Toshiba

830	\$1299	\$1379

Ask about our \$79 extended-life PowerBook Battery.

*Quantum 525 & 1225 Drives Coming Soon!

†Battery-Powered portable case for the PowerBook

WREN

MB	INTL	EXTL
630	\$1599	\$1699
1.2G	1749	1849
1.6G	2549	2649

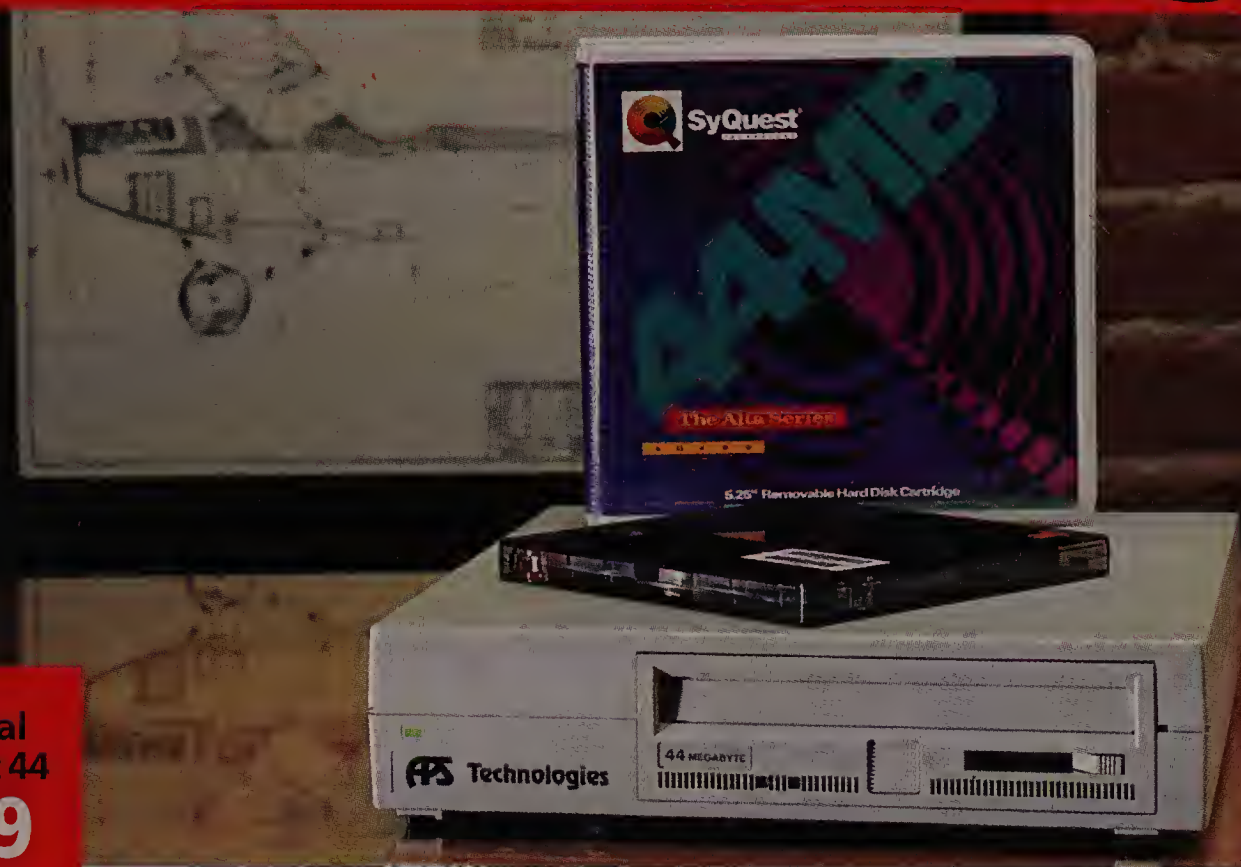
Maxtor

120	\$339	\$419
213	499	569
340	699	769
535	1099	1199
1.2G	1699	1799
1.7G	2299	2399

Call for pricing on our Macintosh SIMMs!

APS Technologies

APS SyQuest 44-Infinite, Transportable Storage



External
SyQuest 44
\$399

Helpful,
knowledgeable
sales
associates

Toll-free
Technical
Support

30-Day
Money-Back
Guarantee

Disk-for-Disk
Replacement
Warranty

24-hour
BBS with
our latest
software

APS
TECHNOLOGIES

Every output service, graphics house and ad agency in the country that uses a Mac, has a SyQuest drive. SyQuest's 44 MB cartridge drive has truly become the standard

in transportable media. In 44 MB increments, get infinite storage capacity. Save files on a cartridge and take them anywhere. You'll be able to access them quickly and effortlessly.

SyQuest

Model	EXTL
SQ-555	\$399
SQ-5110	499
Dual 44	799
Dual 88	959

All tapes drives include Retrospect
by Dantz Development

TEAC

155MB Tape Back-up	\$499
600MB Tape Back-up	799

DAT

Model	INTL*	EXTL
APSDAT	\$1599	\$1699
2.6-5 GB Compression DAT		
APSDAT	1299	1399
Archive-based Mechanisms		
*Quadra 900 & 950		

Digital Audio Tapes

Maxell 60-Meter	\$12.95
Maxell 90-Meter	16.95

Displays

Model	
TriAm	\$399
Full page, grayscale display	
16 grays w/Macintosh si, ci and Quadra built-in video	
256 grays w/Lapis card for SE/30, LC, Mac IIs.....	
	\$799

Toshiba

CD-ROM 3301B	\$599
Includes the five-disc APS Reference & Entertainment Library	

* 30-Day Money-Back Guarantee: All drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.
* Disk-for-Disk Replacement Warranty: Maxtor, Quantum, SyQuest and DAT drives carry a two-year "parts & labor" disk-for-disk replacement warranty. WREN, TEAC, Toshiba drives and SyQuest cartridges carry a one-year "parts & labor" disk-for-disk replacement warranty. Fujitsu drives carry Fujitsu's five-year warranty.
* Prices & Specifications Subject to Change Without Notice.

* Brackets and Cables Included: All hard drives include brackets, cables, cords and LEDs required for operation in the specified Macintosh. All hard drives come pre-formatted with Apple's latest stable all-platform System software, 9.2 mb of compacted publicly distributable software, and APS Technologies' ALLIANCE POWER TOOLS SCSI formatter/hard partitioner.
* Toll-Free Technical Support: Toll-Free Technical Support, 9am to 7pm Monday - Friday, Central Time. As often or for as long as you need.

M-F 7AM-9PM CST. SAT 10AM-4PM CST.
Visa/Master Card, Discover, American Express: No Surcharge.
APS Technologies, 2900 S. 29th Hwy., Independence, MO 64057
International: 1-816 478-8300. FAX: 1-816 478-4596 (24 Hours).
Toll Free UK: 0800-897-545. Australia: 0014-800-125-875.

1-800 235-2752

Circle 31 on reader service card

QuarkXPress 3.1 \$499

Ask about our wide selection of QuarkXTensions.

New! Quark Passport 3.1 Call!

International publishing for QuarkXPress users.

SyQuest 44MB.....	\$62
SyQuest 88MB.....	\$104
3.5" 128MB Carts	\$59
3.5" 256MB Carts	\$99

The DGR 128REM:

MacUser's Price/Performance Leader
July 1992 Optical Drive Review

FWB FWB's Hard Disk
ToolKit Lite Included
with DGR 128REM
& DGR 128REM Turbo

NEC
NEC 2MB \$149
NEC 4MB \$289
Fax Kit \$529

Silentwriter Model 95 \$1369

300 DPI Postscript Level 2 • Auto PC-Mac Switching
6 pages per minute • 35 Resident Fonts



DGR 128REM \$1199

128MB optical drive. 42ms access. 512Kb transfer

NEW! DGR 128REM Turbo \$1299

128MB portable optical drive. 34ms access. 768Kb Transfer
3.5" 128MB cartridges only \$59

UMAX

Authorized Reseller

All UMAX Scanners Include
Adobe Photoshop 2.01 Software
UMAX 630 - 600DPI 24-bit color\$1099
UMAX 840 - 800DPI 24-bit color\$1599
UMAX 1200 - 1200DPI 24-bit color\$3025
UMAX 1200 w/Transparency Adapter.....\$3699
Transparency Adapter for 630 or 1200 allows
scanning of transparencies & slides\$679



UMAX 630 Scanner \$1099
600DPI 24-bit Color Scanner



Authorized Reseller

ColorPage T-1611 Trinitron Display.....\$1299
T-1911 Trinitron Display\$2395
Futura SX 24-bit 16" video card.....\$499
Futura MX 24-bit 19" video card\$879
Colorlink SX/T video & ethernet.....\$649
DoubleColor 12, 13, 16" 8-bit video card...\$399
QuickView Video Quicktime card.....\$399
View Quick Studio\$1399

NEW! PowerLink Presenter & DeskNet for Dockable Duos



Authorized Reseller

PLI Infinity 45 SyQuest\$519
PLI Infinity 88 SyQuest\$649
PLI 3.5" Sony 128MB Optical.....\$1549
PLI 5.25" Sony 1.0GB Optical.....\$3725
PLI Sony 3.5" 21MB Floptical.....\$415
PLI CD-ROM.....\$559
PLI DAT Drive up to 8GB Backup\$1625
PLI Quick SCSI with Cable.....\$319

PLI 3.5" 128MB Optical \$1549
Sony mechanism • 10 year data life



Authorized Reseller

High Performance 300 & 600DPI Printers
PS/300p - 300DPI/4ppm/2MB\$1225
PS/400p - 400DPI/4ppm/4MB\$1675
PS/840 - 800DPI/8ppm/6MB\$3025
PS/840e - 800DPI/8ppm/6MB.....\$3250
PS/880 - 800DPI/8ppm/12MB\$3685
PS/600T - 600DPI/Tab/12ppm/12MB.....Call
PS/1200T - 1200DPI/Tab/12ppm/20MB....Call

NewGen PS/630 \$2359
600DPI, 8ppm, 4MB RAM, RISC processor

SYSTEMS

Call for Latest Prices
All New Apple CPU's

SYSTEM LEASING NOW AVAILABLE

Macintosh Classic II 4/40999
Macintosh Classic II 4/801119
Macintosh LCII 4/401149
Macintosh LCII 4/801249
Macintosh IIsi 3/401515
Macintosh IIsi 5/1051869
Macintosh IIsi 5/102249
Macintosh IIsi 5/1052549
Macintosh IIsi 5/2402775
NEW! PowerBook 145 4/401989
Macintosh PowerBook 145 4/802339
Macintosh PowerBook 160Call
Macintosh PowerBook 180Call
Macintosh PowerBook Duo 210Call
Macintosh PowerBook Duo 230Call
Macintosh Quadra 7003475
Macintosh Quadra 9505475
Macintosh IIfx/IIfxCall

Now Included With Macintosh Systems
- FWB Hard Disk Toolkit Personal Ed!

NETWORKING

Asanté 10base-T Hub249
Asanté MacCon +16 16/64k169/225
Asanté MacCon +301 16/64k179/349
DaynaPort e/II Mac II Ethernet169
Dayna EtherPrint/EtherPrint Plus329/599
Farallon Star Controller/EN799/975
PhoneNet 10 Pack188
QuickMail 10 User V.2.5359
Shiva Ethergate/FastPath 51262/1850
Shiva Netbridge/Telebridge399

QMS Hammerhead

Introducing the new QMS-860
• 11 x 17 Tabloid/A3 Size
• 25MHz Intel RISC Processor
• 12MB RAM Upgradeable to 32MB
• 600DPI, 8ppm Printer Engine
• Complete for only.....\$4079



Timbuktu Remote Access Pak

INPUT/OUTPUT

Apple Extended Keyboard170
EMAC Silhouette Trackball75
Kensington Turbo Mouse 4.0101
Keytronic MacPro Plus Keyboard115
Mac Recorder Digitizer Only89

MODEMS & FAXES

Global Village Teleport ADB SendFax175
Global Village FullFax Send/Receive215
Global Village Powerport465
LogiCode QuikTel Xeba V.42bis374
Practical Peripherals PM14400 FXSA405
Prometheus 96/96 Send/Receive599
Prometheus Ultima Home Office459
PSI PowerBook Modem175
Supra V.32bis Mac Package325
Supra V.32 Mac Package269
ZOOM 24/96 Send/Receive Fax119

PRINTERS

Apple LaserWriter IIf 20MHz 0302499
Apple LaserWriter IIf 25MHz 0303249
Apple StyleWriter339
Apple Personal LaserWriter NTR1675

GCC PLP II/PLP IIs

GCC BLP Elite 4ppm1179
GCC BLP II/BLP IIs1525/1699
Generations Systems PrintersCall
Hewlett Packard LasersCall
Hewlett Packard 300XL2325
Hewlett Packard DeskWriter375
Hewlett Packard DeskWriter C615
LaserMaster High-Res PrintersCall
QMS PS-410/8601475/4079
Seiko ColorPoint PS - A Size3575

Trinitron Displays

RasterOps 24-bit Accelerated
Paintboard Li & 16" Trinitron \$1499



Sony 1604 - 16" Trinitron\$1029
Sony 1304 - 14" Trinitron.....\$599

Tektronix Color Quick InkJet

TI microLaser PS XL 17/352449/2799
TI microLaser Turbo/TurboXL1925/3129

VIDEO SOLUTIONS

Apple 12"/13" HighRes RGB399/589
Apple 16"/21" Color RGB1199/3449
E-Machines T-16111299
E-Machines Futura SX499
E-Machines, All ModelsCall
Envivio PowerBook Video Card 4MB975
Ikegami CT-20" Trinitron1795
Mass Micro Quick Image 24349
NEC MultiSync 3FGx/4FG629/755
NEC MultiSync 5FG/6FG1349/2399
Radius Pivot Mono/Color679/1259
Seiko CM-1445539
Sony 1304/1604599/1029

ACCELERATORS & CACHE

AE QuickSilver IIsi/IIsi w/FPU185/245
AE TransWarp LC 33MHz/FPU749/895
Radius Rocket 040 25i1195
SIMMs: all types - Best PricesCall
Motorola PMMU 6885259
Newer Technologies AcceleratorsCall

BOTTOM LINE 24-HOUR INTERNATIONAL SALES FAX (512) 476-6399



Bottom Line Distribution is committed to the needs of the international Macintosh user and reseller. We offer discounted rates with DHL, UPS International, or Federal Express. Delivery times to most countries is 2 to 3 days. We stock 220v versions of most hardware. Dealer inquiries are welcome. Language interpreters are available. Se hace pedidos internacional. Εξυπηρετούμε διεθνής παραγγελίες. Nous acceptons des commandes internationales. Internationale Händlerkonditionen.

日本語での国際取引も扱っております。



1219 West Sixth, Austin, Texas, USA 78703

WACOM Touch Sensitive Tablets

6x9 Standard	\$449	12x18 Standard	\$959
12x12 Standard	\$649	12x18 Electrostatic	\$1010
12x12 Electrostatic	\$699	18x25 Standard	\$2525

Painter \$199

(with purchase of Wacom Tablet)
Wacom compatible MacUser Eddy
Award Winner from Fractal Design



**1MB TI Printer
Upgrade \$39**

MICROTEK NEW SCANNERS!

40% faster scanning than 600ZS

ScanMaker II \$885

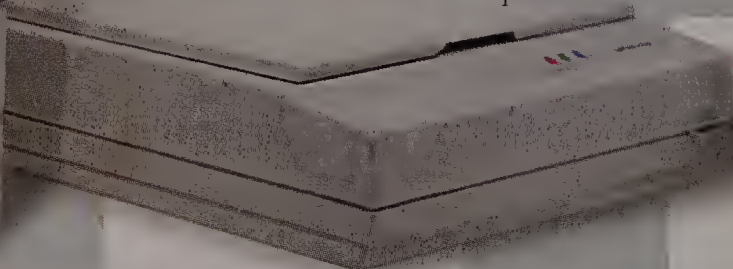
1200 DPI 24-bit Color Scanner with Photoshop LE

ScanMaker IIxe \$1169

1200 DPI 24-bit Color Scanner with Full Photoshop 2.01
& ScanMatch Calibration Software

ScanMaker 1850 \$1475

1850 DPI Color Slide Scanner with Photoshop



TI microLaser Plus PS/17 \$1209

TI microLaser Plus PS/35 \$1325

9ppm printer engine • True Adobe Postscript Language
Appletalk interface & 1.5MB RAM included on all models
1MB TI Upgrade \$39 • Replacement Toner \$42

Turbo microLaser PS/35 \$1499

RISC Processor • Postscript Level 2 • Appletalk Interface
16ppm Turbo microLaser PS/35 XL \$3129
4MB Turbo microLaser RAM \$399

SUPERMAC™
Authorized Reseller



ThunderStorm /ThunderStormPro.....	\$809/\$2789
Spectrum 8 * 24 PDQ	\$799
Spectrum /8 IIsi & LC	\$478
Thunder 8/24 Video Cards	Call
SuperMatch 17" Multimode/Trinitron ..	\$1059/\$1125
SuperMatch 21" Platinum Display	\$979
20"/20T Multimode Trinitron	\$1499/\$2275
SuperMatch 21" Dual Page	\$2775

Video Spigot starting at \$399
Thunder Cards - Call!

RasterOps™
Authorized Reseller



CorrectPrint 300DPI Dye-Sub Color	\$6899
8/24XLI Accelerated Video Card	\$899/\$1699
NEW! PhotoPro	\$749
Colorboard 264 SE/30	\$679
Video Expander (NTSC/PAL)	\$449
364 Board Frame Grabber 24-bit 13/14" ..	\$675
20" Multi-Scan Trinitron	\$2639
20" Multimode Color	\$1899

NEW! Paintboard Li \$789
24-bit Accelerated Video Card

radius™
Authorized Reseller



Rocket 040 25i/25/33	\$1195/\$1599/\$1985
VideoVision 24-bit Video	\$1899
Precision Color Interface 8xj/24x	\$475/\$1575
Precision Color 24xp /24xk	\$479/\$789
NEW! Rocket Share	\$425
Mono Two Page Display 19"/21"	\$885/\$1125
Precision Color 19"/20"	\$2025/\$2649
Pivot Display Mono/Color	\$679/\$1259

Color Pivot LE & Card \$749
Available for all Macintosh CPU's

DAYSTAR
Authorized Reseller



Accelerators for LC, SE/30, II, IIsi, IIcx, IIci	
All Cards Include Free CPU Slot Adapter!	
33MHz PowerCache	\$549
33MHz PowerCache with 68882 FPU	\$679
40MHz PowerCache	\$745
40MHz PowerCache with 68882 FPU	\$905
50MHz PowerCache	\$1075
FastCache IIsi/IIci	\$265/\$195

**Daystar 50MHz PowerCache
with 68882 FPU \$1299**

SCANNERS

HP ScanJet IIC	1299
Microtek 1850 Slidescanner	1475
Sharp JX320 w/Interface	1375
Sharp JX450/600 w/Interface	4159/9989
Tamarack 8000C w/PhotoShop	1499
Umax 630 w/PhotoShop	1099
Umax 1200 w/PhotoShop	3025

DRIVES & TAPES

Internal or External Drive Kit	29/99
Applied Engineering 1.44 Drive	209
Applied Engineering Plus Drive	283
Bernoulli 90MB w/ Interface	814
Fujitsu 425MB/520MB	999/1099
PLI Super Floppy/Turbo Floppy	399/287
PLI Quick SCSI with Cable	319
Quantum 105MB LPS	325
Quantum ProDrive 240MB	599
Quantum 425MB	1049
Toshiba 830 12.5 ms	1299
All Seagate Drives	Call

CD ROM

Chinon CD-ROM	525
NEC CDR-37 w/ Type Gallery	469

NEC CDR-74	616
PLI CD ROM	559
Toshiba CD-ROM XM 3201A	685
Microsoft Office - CD ROM	574
Type Gallery PS	229
NEC Clip Art 3-D	221

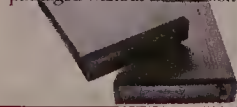
SOFTWARE

4th Dimension 2.2	469
Act! Contact Manager	Call
Adobe Illustrator 3.2 w/ATM	335
Adobe PhotoShop 2.0	499

Supra Fax Modems

Supra V.32 Fax Mac Package	\$269
Supra V.32bis Fax Mac Package	\$325
Supra V.32 Fax Stand Alone	\$225
Supra V.32bis Fax Stand Alone	\$285

Mac packages include cable and software. Stand alone units are packaged without cable & software.



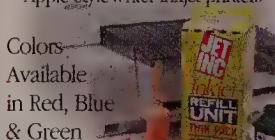
Adobe Type Align	62
Adobe Type Reunion/Streamline2	36/115
AfterDark & More After Dark Bundle	37
Aldus Freehand 3.1	369
Aldus PageMaker 4.2A	475
Aldus Superpaint 3.0	129
Aldus Gallery Effects	129
Aldus Persuasion 2.1	299
At Once! 1.2	177
AutoDoubler	41
Canvas 3.0	239
Clarix Works	184
DiskFit Pro	67
Disk Doubler 3.7	39
Disk Top 4.0	62
Farallon Media Tracks	171
Far Side Calendar	46
Fastback Plus 2.6	115
FileMaker Pro	181
FilmMaker	455
Fontographer 3.5	249
FontMonger	65
Foxbase +Mac 2.01	265
Fractal Design Painter	234
FrameMaker	642
Mac Academy Video Training Tapes	39

MacDraw Pro	249
MacProject II 2.5	329
NEW! Macromind Director 3.1	849
Macromind MediaMaker	449
Managing Your Money 4.0	92
MasterTracks Pro	297
MicroPhone II 4.0	195
Microsoft Excel 4.0	299
NEW! Microsoft Word 5.0	279
Microsoft Office 2.5	489
MS Project	429

JetInc. Inkjet Refill

Black Twin Pack

Refill unit for HP DeskWriter or Apple StyleWriter inkjet printers



Colors Available in Red, Blue & Green

MS Works	179
MiniCAD 3.1	469
More 3.1	249
Norton Utilities Mac 2.0	88
OmniPage 3.0/OmniPage Pro	449/629
Passport Encore	335
Passport Midi Interface	63
PixelPaint Professional 2.0	479
Pixar Renderman	559
Quark XPress 3.1	499
Quick Keys II V.2.12	87
Quicken 3.0	38
Retrospect 1.3	131
Snooper	99
Snooper with NuBus	139
Soft PC - All Versions	Call
StrataVision 3D 2.0	579
SUM II	87
Swivel 3D Pro	399
Think C 5.0	189
Think Pascal 4.0	159
Typestyler 2.0	122
White Knight	75
WordPerfect 2.03	265
Write Now 3.0	111

HOW TO ORDER Payment: Visa, Mastercard, Discover (no surcharge), checks, and COD's. \$6,000 maximum on COD's **Tax:** Texas residents add 8% sales tax. **Prices** and items subject to change and availability. **International:** 5% surcharge on international orders. **Mail In:** Orders accepted with a \$10 surcharge. **Terms:** You are not charged until your order is shipped. Phone charges cannot be refunded. **Shipping:** minimum \$5-UPS Ground, Blue, Red, Federal Express. **Returns** must be in original condition and package and require an RMA#. Seal must not be opened on software. Returns may be subject to a restocking fee. Ask for details when ordering. Bottom Line Distribution cannot be responsible for errors in typography or photography.



BOTTOM LINE

DISTRIBUTION

Fax: 1-900-420-8770

1219 West Sixth • Austin, Texas 78703

\$10 PER FAX

1-900-420-3636

\$2 PER MINUTE

THE MAC SOLUTIONS HOUSE

ADVANCE BUSINESS CENTER

HOURS (Pacific Time):
Mon-Fri. from 6:00 AM
Saturday 9am to 2pm

1(800) 723-8262

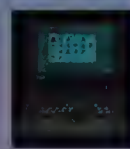
SERVICE

- Member of the Better Business Bureau
- Toll-Free Ordering & Technical Support
- Express Delivery Available anywhere in the world
- Once you place your order, your system will be configured to YOUR needs, then burned in and tested before shipped
- Education, Government & Technical P.O.'s Accepted



SUPPORT

- All Peripherals backed by a 30-Day satisfaction money-back guarantee (see details at bottom)
- TWO-YEAR Service Plan Available: 72-Hour Express Repair 1st Year/ + a 2nd Year Extended Warranty
- Buy with Confidence, as ABC is a strong, rapidly growing company with both Mac & PC experience



SALES & FINANCING

WE ARE THE MAC SALES, FINANCING AND LEASING EXPERTS. FOR PERSONAL FINANCING OR BUSINESS LEASING, CALL US FIRST!

THREE GREAT REASONS TO LEASE FROM ABC:

1. LEASING IS TAX DEDUCTIBLE
2. LEASING PROTECTS FROM OBSOLESCENCE
3. 24-HOUR APPROVALS IN MOST CASES

E-Machines & Apple

E-Machines Monitors

E-Machines T-16 II \$ 1295/38 mo.*

16" Color Trinitron Tube, FOUR Display Resolutions: 13", 16", 19" & 21", Meets World's Toughest Swedish MPR II Standards for Unexcelled Safety, Compatible with Mac IIsi, Ilic, & Quadra Built-In Video

E-Machines T-19 II \$ 2395/71 mo.*

Extraordinary 19" Display has 19" Color Trinitron Tube, TWO Resolutions: 19" & 21", Meets World's Toughest Swedish MPR II Standards for Unexcelled Safety

E-Machines Boards

Futura Boards

Most Affordable 24-Bit Accelerated Graphics Cards for the Macintosh

FUTURA SX (24-Bit Accel. for 16" Monitors/8-Bit on 19" -- on the fly 8-Bit 16" to 19") .. \$ 495

FUTURA MX (24-Bit Accel. Board has on-the-fly 16" & 19" res.) \$ 795

FUTURA LX (24-Bit Accel. Board has on-the-fly 16", 19", 21" res.) \$ CALL

DoubleColor Boards

Most Affordable 8-Bit Accelerated Graphics Cards

DOUBLE COLOR LC (8-Bit up to 16" Res on Moc LCs)..... \$ 395

DOUBLE COLOR SX (8-Bit up to 19" Res.) \$ 395

DOUBLE COLOR LX (8-Bit up to 21" Res.)..... \$ 595

ColorLink Boards

Integrated EtherNet & Accel. Graphics give high-end Quadra features to lower-cost Macs

COLORLINK SX/T (24-Bit to 16" Res. & 8-Bit to 19" Res.) \$ 620

Complete Systems - 0% Down Leasing



APPLE/E-MACHINES MAC Ilic SUPERSTATION..... \$ 5950 / \$ 150 mo.*

Moc Ilic w/20MB RAM, Quantum 425MB Hard Drive, E-Machines T16 II 16" Trinitron Color Monitor & Futuro MX 24-Bit Accelerated Video Board, and Ext. Keyboard

APPLE/E-MACHINES MAC Ilic TOTAL SUPER SYSTEM..... \$ 9295 / \$ 235 mo.*

Moc Ilic 5/105, E-Machines T16 II Monitor & Futuro MX Cord, Ext. Keyboard, UMAX UC630 24-Bit Color Scanner, PLI 44MB Removable Syquest Drive, Apple Personal LaserWriter NTR Printer, Quark XPress & Adobe Illustrator Software

APPLE/E-MACHINES MAC QUADRA 700 SUPERSTATION..... \$ 7250 / \$ 235 mo.*

Moc Quadra 700 w/20MB RAM, Quantum 425MB Hard Drive, E-Machines T16 II 16" Trinitron Color Monitor & Futuro MX 24-Bit Accelerated Video Board, and Ext. Keyboard



APPLE MAC QUADRA 700 SUPERSYSTEM Quadro 700 w/8MB RAM, Quantum 120 MB Hard Drive, E-Machines T16II Trinitron Color Monitor & 24-Bit Color VRAM, NewGen 400P (400 DPI) Laser Printer, Apple Ext. Keyboard, UMAX UC-630 24-Bit Color Scanner, PLI 44MB Removable Cortridge Drive, and Quark X-Press OR Aldus Pagemaker Software, & ABC Two-Year Service Plan

\$199 mo.*

Apple Mac CPUs

CALL ABOUT NEW MAC IIs, NEW POWERBOOKS, & NEW MAC PERFORMAS!

ORIGINAL MACS AT PERFORMA PRICES!

Moc Classic II 4/40 \$ 1299 / \$ 40 mo.*

Mac LC II 4/40 \$ 1499 / \$ 45 mo.*

Both Include ClorisWorks & Quicken Software

APPLE MACINTOSH CPUs

Moc IIsi 5/105 \$ 1890 / \$ 56 mo.*

Moc Ilic 5/210 \$ 2795 / \$ 85 mo.*

Quadro 700 8/120 \$ 4050 / \$ 123 mo.*

Quadro 700 8/425 \$ 4790 / \$ 142 mo.*

* Per Month on Lease or Financing Plan. Please Call for Details

Complete Mac Systems

MAC LC II COMPLETE STARTER SYSTEM



\$2790/
\$84 mo.*

Mac LC II w/4MB RAM, 40MB Hard Drive, Panasonic 14" Color Monitor, Keyboard, HP DeskWriter Printer, Prometheus 2400 Data/ 9600 Fax/VoiceMail Modem, ClorisWorks & Norton Utilities Software, Mousepad & Diskettes

APPLE MAC Ilic SYSTEM..... \$3195/95 mo.*

5MB RAM/120MB HD, 14" Panasonic Color Monitor, Extended Keyboard

APPLE MAC IIsi SYSTEM..... \$2360/70 mo.*

5MB RAM/80MB HD, 14" Panasonic Color Monitor, Extended Keyboard

POWERBOOKS

APPLE POWERBOOK 145 4/40..... \$2095/59 mo.*

APPLE POWERBOOK 170 8/80..... \$3990/120 mo.*

ASK ABOUT NEW MAC POWERBOOKS!

C.O.D. ORDERS: ADD \$5.00 on Federal Express. Money Orders & Cashier's Checks are accepted, no company or personal checks please. **Shipping:** Please Call for Shipping methods and rates. California residents (only) add 8.25% sales tax.

Mail Order: Please send money orders or cashier's check for faster service. Allow 10 days for personal checks to clear. If ordering by credit card, include expiration date & billing address.

Return Policy: Call Customer Service at (310) 325-1422 to obtain a return authorization. Returned products must be in original condition and

packaging and must be sent back within 30 days of purchase date. 15% Restocking Fee on opened and used Printers and Computers. No returns on opened Software packages.

Conditions: Prices are subject to change without notice. All items subject to availability. We reserve the right to refuse to sell to anyone.

Credit Cards: We accept Visa, MasterCard, American Express/Optima, Discover, Diner's Club, and Carte Blanche.

Not responsible for typographical errors. All information presented believed accurate at time of printing. Information subject to change without notice.

1 (800) 723-8262

FOR INTERNATIONAL SALES
CALL: (310) 325-1422

(800) 723-8262 / (800) 274-7747
(310) 325-1422 / fax: (310) 325-4073

23510 Telo Ave. #5, Torrance, CA 90505

**ADVANCE
BUSINESS
CENTER**

ZERO DOWN LEASING! FAST APPROVAL!

Printers



NEWGEN PS 400P
400 DPI Laser Printer \$1695/
\$50 mo.*



HP COLOR DESKWRITER C \$649

HP DESKWRITER.....\$ 399



SEIKOSHA MAC PRINTER
SP 2400 SP.....\$ 245
NEW! FASTER ImageWriter II Compatible

DATAPRODUCTS LZR 960 LASERPRINTER.....\$ 1699/\$ 50 mo.*

MacUser's All-Around Favorite Personal PostScript Printer

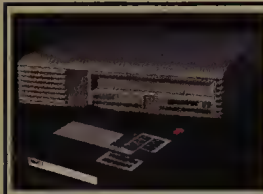
QMS 860 HAMMERHEAD LASER PRINTER.....\$ 4150/\$ 135 mo.*

600x600 dpi, Tobloid, new generation Canon Engine top features

PRIME OPTION COLORRIGHT PRINTER.....\$ 11995/\$ 303 mo.*

Outstanding Resolution from Excellent Color Dye Sub Printer

Drives



PLI

44MB SYQUEST DRIVE.....\$ 565

88MB SYQUEST DRIVE.....\$ 695

128MB OPTICAL DRIVE.....\$ 1529

NEC INTERSECT CDR-37 CD ROM DRIVE.....\$ 435

New generation of NEC's Portable CD-ROM Ployer

INTERSECT CDR-74 CD ROM DRIVE.....\$ 635

RICOH 128MB REMOVABLE OPTICAL DRIVE.....\$ 1529/45 mo.*

128MB on a 3.5" Removable Optical Cartridge

RICOH 650MB REMOVABLE OPTICAL DRIVE.....\$ 2995/89 mo.*

650MB on a Removable Optical Cartridge

Monitors/Video

NEC 3FGx 15" Monitor.....\$ CALL

Great Quality MultiSync Monitor is both buyer & critic favorite

RADIUS COLOR PIVOT LE & CARD.....\$ 799

15" Color monitor pivots from portrait to landscape modes.

SUPERMAC THUNDER 24 BOARD.....\$ 2769

GORGEOUS 24-Bit Color and the FASTEST ACCELERATION around

Blow-Out of the Month

POWERBOOK 100 4MB HARD DRIVE BOARD.....\$ 195

Double the space at 100MB Drive! (Requires Dealer Installation)

HARRIS LABS MAC CLASSIC ACCELERATOR.....\$ 195

Ups Classic to 16MHz w/apron for math chip. (Requires Dealer Install.)



International Specials

INTERNATIONAL CUSTOMERS WELCOME

ABC is committed to serving the needs of International Customers and Resellers. For more information, please call our INTERNATIONAL HOTLINE: (310) 325-2687 and ask for Department 133.

UMAX UC630 SCANNER INTERNATIONAL BUNDLE.....\$ 1299

Color Scanner (220-Volt Ready), Adobe PhotoShop/WordScan

MAG 14" TRINITRON COLOR MONITOR (.25 dot pitch).....\$ 569

QMS PS 860 LASER PRINTER.....\$ 4150

SEIKO INSTRUMENTS



SEIKO CM 1445 14"
Trinitron Color Monitor
\$ 535

SEIKO PERSONAL COLORPOINT PSE.....\$ 3399/99 mo.*

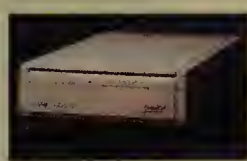
High Quality Color Printer prints Presentation Quality output on High Quality Plain Paper or on Transparency Film.

SEIKO DT3613 GRAPHICS TABLET.....\$ 295

Complete System with Drawing Pen & 4-Button Cursor

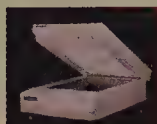
SEIKO SMARTLABEL PRINTER PLUS.....\$ 145

Leading Label Printer & Easy Software



SEIKO SPECTRAPOINT
800 x 400 DPI 24-Bit
Color Scanner
\$1995/\$60*

Peripherals



TAMARACK \$ 1555
ARTISCAN 8000c or \$ 46*
(800 x 800 DPI) per month*
24-Bit COLOR SCANNER



UMAX UC-630 \$ 1279
24-BIT COLOR SCANNER or \$ 37*
INCLUDES ADOBE PHOTOSHOP 2.01 per month*
& WORDSCAN OCR SOFTWARE!!

PROMETHEUS ULTIMA HOME OFFICE.....\$ 448
14,000 BPS Data Modem, 9600 BPS Fax, Integrated VoiceMail & Complete Software in Powerful, Easy-to-Use Package!

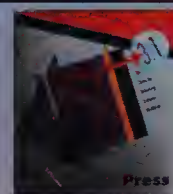
HOME OFFICE (2400 data w/9600 Fax & VoiceMail).....\$ 255

SUPRA V.32 BIS FAXMODEM.....\$ 349

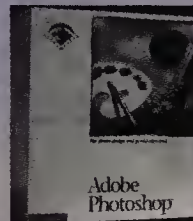
14,000 BPS Data & 14,000 BPS Fax, too!

SUPRA FAXMODEM V.32.....\$ 295

Software



QUARK XPRESS 3.1
Tops in Desktop Publishing
\$ 544



ADOBE
ADOBE ILLUSTRATOR.....\$ 365
ADOBE PHOTOSHOP.....\$ 435
ADOBE PREMIER 2.0.....\$ 434
ADOBE FONTS.....\$ CALL
ALDUS FREEHAND.....\$ 390
ALDUS PAGEMAKER.....\$ 490



CLARIS
NEW! CLARIS FILEMAKER PRO 2.0
The Best gets Better!.....\$ 277
CLARIS WORKS.....\$ 195
CLARIS MACWRITE II.....\$ 85

MICROSOFT EXCEL 4.0.....\$ 290
MICROSOFT WORD.....\$ 290



MACROMEDIA
DIRECTOR 3.1.....\$ 797
MACRECORDER PRO.....\$ 245
MACROMIND 3-D 2.02.....\$ 999



PowerBook Accessories

APPLIED ENGIN. POWERBOOK BATTERY RECHARGER.....\$ 179

Completely de-charges & recharges your PowerBook battery

CONNECTIX CPU (CONNECTIX POWERBOOK UTILITIES).....\$ 49

Set of powerful software utilities designed just for PowerBooks.

GLOBAL VILLAGE POWERPORT GOLD.....\$ 595

Completely Int. PowerBook Modem: 14,000 BPS Data/9600 Fox

POWERPORT SILVER (9600 Data/9600 Fox).....\$ 469

SOPHISTICATED CIRCUITS POWERBOOK KEYPAD.....\$ 89

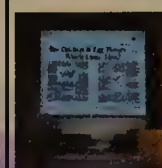
Sturdy Numeric Keypad plugs in quickly to Mac PowerBooks

TARGUS POWERBOOK PREMIERE LEATHER CASE.....\$ 135

NEW! EXTENDED POWERBOOK BATTERY.....\$ 89

PowerBook replacement battery lasts up to 25% Longer!

Product of the Month



LAPIS TWO-PAGE MONITOR CARD.....\$ 870
High Quality, Hi-Res 19" Monochrome Monitor & Video Board from Established Mac Company!

1 (800) 7-ADVANCE

**ADVANCE
BUSINESS
CENTER**

1 (800) 723-8262

Circle 227 on reader service card

ZERO DOWN FINANCING! EASY TO APPLY!

Monitors to the Macs!

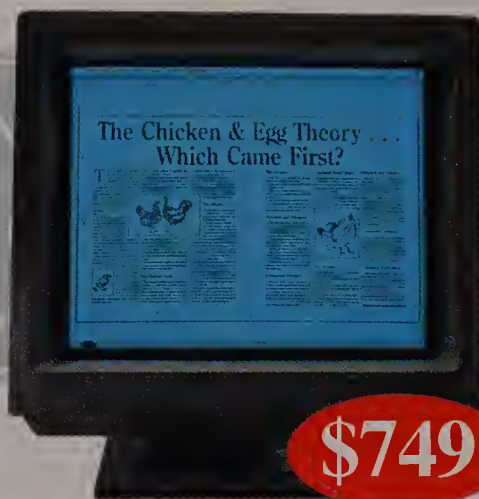
See More for Less with Lapis Displays

Lapis Interface Cards



\$399

Lapis Monochrome Display
15" Full-Page • 640 x 872 • For Mac Plus
Classic, SE, SE/30, LC, IIsi, & II-family



\$749

Lapis Monochrome Display
19" Two-Page • 1024 x 828 • 74 dpi
For SE/30, LC's, IIsi, II's & Quadras

NEW Lapis ProColorServer Card



24-bit Color
for Apple 13"
Displays

\$399

For Mac Plus, Classic, SE, SE/30, LC,
LC II, IIsi, II-family & Quadras
Lapis makes Full-Page & Two-Page
Interfaces with Monochrome, Gray Scale or
Color capabilities for just about every Mac
Call for Details & Pricing!

New Lapis PowerBase

12 to 21" Video for PowerBooks **\$449**

Mac Cpu's

Mac Classic II, 4/40	1275
NEW Mac LC II, 4/40	Call
Mac IIsi, 3/40	1595
Mac IIsi, 5/0	Call
Mac Quadra 700/ 950	3695/NEW
PowerBooks	Call

Mac Systems

LC II Color System	\$1,695
Mac LC II, 4MB RAM/40HD, Sony 1320 14" Color Display, Apple Keyboard, Mouse, System 7 & Hypercard	
IIsi Productivity System	\$2,195
Mac IIsi 3MB/40HD, Lapis 15" Full-Page Display, Apple Keyboard, Mouse, System 7 & Hypercard	
IIsi Color Graphics System	\$3,095
Mac IIsi 5MB/40HD, Mitsubishi 14" Color Display, Apple Keyboard, Mouse, System 7 & Hypercard	

Software

Adobe Illustrator 3.2 w/ATM 2.0	379
Adobe Photoshop 2.0	579
Adobe Type Manager	64
AfterDark/More After Dark	40
Aldus PageMaker 4.2A	519
Aldus SuperPaint 3.0	139
Act!	275
Canvas 3.0	265
Microsoft Excel 4.0	319
Microsoft Word 5.0	295
Microsoft Works	165
Quark Express 3.1	595
Quicken 3.0	49

Scanners

UMAX®
Umax UC630
600 dpi, 24-bit
Color
Scanner
with full
PhotoShop

\$1,125

Umax 1200S w/Photoshop **CALL**

NEW Microtek ScanMaker II	945
NEW Microtek ScanMaker IIxe	1245
Sharp JX-320 w/Photoshop	1445

Modems

TLOGICODE
Quicktel Xeba
9624 Fax/
Receive

Fax and
receive at 9600
bps. Standard
through-put up
to 9600 bps with
V.42bis data
compression.

\$169

Xeba 2400 data modem	79
Xeba PocketFax modem for PBs	159
Xeba 9696 fax w/V.42bis	299
Xeba 14400 fax/receive w/ V.42bis	349

Drives & Storage

PLI Removable 44/88	569/699
PLI Optical 3.5"/5.25"	1495/2895
PLI Floptical	469
PLI Quick SCSI	329

Displays & Cards

radius

SPECIAL Color Pivot LE w/card	789
Radius 24Xp, 24Xk, 8Xj	499/849/499
Radius VideoVision	1995

DISPLAYS

Sony 1320/1304/1604S	379/629/1075
E-Machines T-16II	1295
Seiko 14"/17"	CALL
Apple 12"/13"	429/655

VIDEO CARDS

E-Machines DoubleColor & Futura **Call**

SIGMA DESIGNS
Power Portrait
15" Display plugs
into PowerBooks,
Plus, Classics, SE
& SE 30 scsi ports
available in platinum
or granite color -
price for platinum

\$749

21" SilverView Pro Display	1095
Sigma MultiMode 120 Display	895

Printers

QMS 860 11x17" Tabloid 600dpi	4195
QMS PS-410/815MR	1495/3995
Apple LaserWriter IIF/IIG	2765/3445
Apple LaserWriter NTR	CALL

TEXAS INSTRUMENTS
Includes AppleTalk

T1 microLaser TURBO RISC
Processor,
9 ppm,
300dpi,
35 fonts

\$1,575

T1 microLaser PS-17	1245
T1 microLaser PS-35	1395

Accelerators

Radius Rocket 25i	1195
Radius Rocket 25/33	1625/2035

MacNews Hours: M-TH 8am-7pm; Fri til 6pm (CT) Sat 9am-2pm

Mac News

1555 SHERMAN AVENUE

SUITE 361 • EVANSTON, IL 60201

1-800-243-9383

Toll-Free 24hr Fax 800-243-9385 • Int'l Fax 312-871-4550

Apple, Mac are trademarks of Apple Computer. Prices subject to change without notice. All returned orders will be subject to a minimum 15% restocking fee plus return shipping. Call for RMA before returning. All warranties on Macintosh or Apple brand products sold by MacNews will be honored by MacNews or its authorized agents only. All other manufacturer's warranties still apply.

Circle 172 on reader service card



Macs 4 Less

1-800-475-MACS
1-800-475-6227

Every computer is tested before we ship it to you!

The Macs 4 Less Difference
Most systems are in stock
One year written warranty
Knowledgeable staff
Competitive Prices

\$2,799

with Free Shipping!
II Si Desktop Special!
9MB RAM
80 MB Hard Drive
14" Hi-Res Color Monitor
MacPro-Plus Ext. Keyboard
Lease from \$95/mth

\$2,349

with free shipping!
LC II Color System!
6MB RAM & 512K VRAM
80MB Hard Drive
14" Hi-Res Color Monitor
Extended Keyboard
Apple Stylewriter
Ink Refill Kit
(Limited availability)

All Systems include all cables and hook-ups.

LC II Systems

Includes MacPro-Plus Extended Keyboard, Mouse, Microphone and 14" Hi-Resolution Color Monitor

Lease from	\$75/mth	4/80	\$1,849
4/40	\$1,599	8/80	\$1,979

II Si Systems

Includes MacPro-Plus Extended Keyboard, Mouse, Microphone and 14" Hi-Resolution Color Monitor

Lease from	\$99/mth	5/80	\$2,629
3/40	\$2,259	17/240	\$3,199

II Ci Systems

Includes MacPro-Plus Extended Keyboard, Mouse, 32K Cache Card and 14" Hi-Resolution Color Monitor

Lease from	\$99/mth	8/80	\$3,429
5/40	\$3,059	17/240	\$3,959
5/80	\$3,309	20/425	\$4,429

\$4,899

with Free Shipping!
II Ci Holiday Special!
8MB RAM
80 MB Hard Drive
14" Hi-Res Color Monitor
MacPro-Plus Ext. Keyboard
Ti Microlaser PS17
Lease from \$135/mth

System purchase Upgrades & Add-ons

SupraFAXModem	\$339
V.32bis™ Complete w/all software & cable	
NEC SilentwriterII	\$1,499
model 95 w/software & connectors	
Stylewriter	\$359
Aldus Pagemaker v4.2a	\$509
Microsoft Excel v4.0	\$329
Microsoft Word v5.0	\$349
Microsoft Works	\$169
Kensington Turbo Mouse	\$105
Silhouette Trackball	\$79

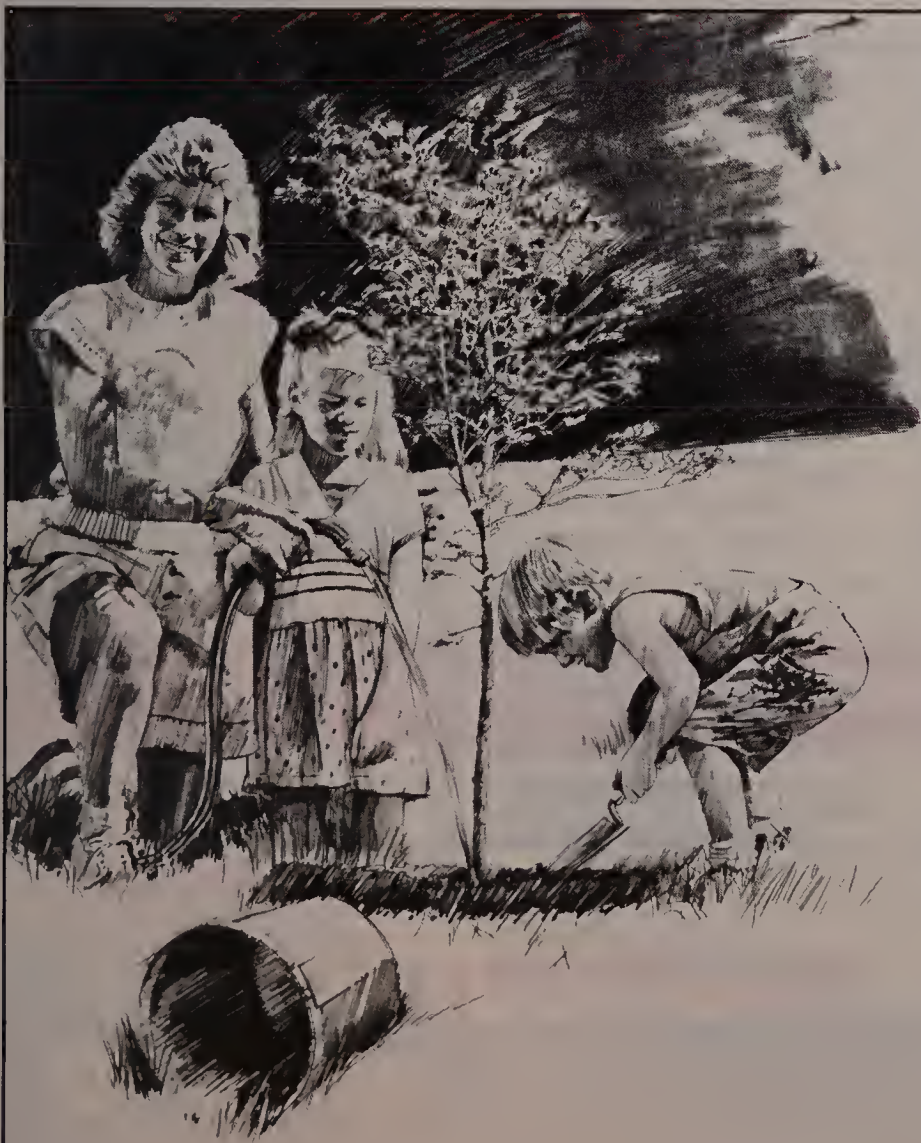
Macs 4 Less Inc.

12407 Mopac Expwy, #101-302
Austin, TX 78766-9700

M - F: 8 - 7 Sat: 10 - 4
1-512-251-1151

We accept C.O.D. and Prepaid Orders (Cashiers' Checks and Certified Checks). Prices are subject to change. Returns and refused shipments are subject to a restocking fee. Not responsible for typographical errors.

Circle 30 on reader service card



Cool The Sun

Half the fun of planting a tree is imagining what it will be like in a few years. Our tree will branch out to shade us from the summer sun, help cool our home and the neighborhood, and conserve energy in the process. It will provide a home for songbirds, and will remind us of the special times we share together.

You can cool and beautify your home, too. Join me and plant a tree. For your free booklet, write: Conservation Trees, The National Arbor Day Foundation, Nebraska City, NE 68410.



**The National
Arbor Day Foundation**

Billboard Product Index

Hardware

Peripherals
MacOutlet
800.622.6885 361

Peripherals
PCon Inc.
800.726.6462 362

Memory Upgrade
Add On America
800.292.7771 362

Monitors
Panelight
800.726.3599 362

Computer Systems
Mac Professional
818.719.0007 363

Scanners
Spark International
708.998.6640 363

Software

Graphics
Imspace Systems
800.949.4555 362

Astrology
Time Cycles Research
203.444.6641 363

Games
Amtex
613.967.7900 363

Kids' Games
O'Connor House
414.734.0259 363

Personal Finance
Te Corporation
603.726.7177 363

Astronomy
Carina Software
510.352.7328 364

Screen Saver
MIFP
800.697.6437 364

CAD/CAM
Douglas Electronics
510.483.8770 364

Services

CD ROM
ISOMEDIA
206.869.5411 364

Accessories

Music
KORG
800.842.4777 365

Furniture
Agio Designs
800.688.2446 365

Batteries
BTI
800.982.8284 365

Utilities
DGR Technologies
800.235.9748 365

Catalog Product Index

Hardware

Bar Code 366
Computer Systems 366
Memory Upgrade 371
The LLB Co. 371
Memory Direct 372
Peripheral Outlet 373
Peripherals 374
Mac Merchant 375
Relax Technology 376
Printers 377

Software

Accounting 377
Astrology 377
Bar Code 377
Business 378
CAD/CAM 378
CD ROM 378
Clip Art 378
Communications 379
Cooking 379
Educational 379
Engineering 380
Fonts 380

Genealogy 3
Graphics Translators 3
Human Resources 3
HyperCard Stacks 3
Languages 3
Medical 3
Music/Midi 3
Real Estate 3
Religion 3
Sales/Marketing 3
Scientific 3
Shareware 3

Services

Computer Insurance 3
Computer Repair 3
Data Recovery 3
Laser Recharge 3
Slides 3
Video 3

Accessories

Cases
Covers
Diskettes

MW Shopper Advertising Sales Staff

Carol Johnstone
Account Manager, MW Shopper
415.978.3152

Shannon Smith
Account Manager, MW Shopper
415.974.7414

Niki Stranz
Account Manager, MW Shopper
415.978.3105

800.888.8622

800-622-6885

Putting Power On Your Desktop

SPECIALS!!

DAYSTAR
DIGITAL

Universal PowerCache
50MHz w/68882

\$1295

Factory Fresh Daystar Three-Year Warranty

RasterOps

MacOutlet has just acquired the entire supply of RasterOps demo products used for four days at MacWorld Expo Boston. All product carry full factory warranty and are in limited supply.



Dream System

RasterOps 21" Color Hitachi Monitor w/24XLTV **\$4799.**

RasterOps 21" Color Hitachi Monitor **\$2599.**

24XLTV

24 bit large screen display board with video **\$2499.**

Designer System

2075M 20" Trinitron w/24 XLI Package Price **\$3999.**

24 XLI accelerated color card **\$1699.**

2075M 20" Trinitron **\$2499.**

With purchase of system

Add a CorrectColor Printer for only **\$6399.**

Add a Color Calibrator for only **\$1699.**

TOLL FREE LINE FOR BOTH ORDERS
AND TECHNICAL SUPPORT

THREE-YEAR WARRANTY ON ALL

RASTEROPS SUPERMAC AND

DAYSTAR

BEST TECHNICAL SUPPORT AVAILABLE

30 DAY MONEY BACK GUARANTEE

SuperMac

Spectrum 24 Series III/Trinitron System
24 bit accelerated card with SuperMatch 20 Dual Mode Trinitron

Spectrum 8-24 PDQ SuperMatch 20" Sys.
Accelerated video card with 20" SuperMatch

SuperMatch 17" Multimode Color Monitor

Spectrum 8-24 / 8-24 PDQsi

Spectrum 8LC

All SuperMac products in stock.

Call us about our special board trade-in program.

Call for special education allowance.

NEC

NEW 4FG 15" MultiSync Monitor

IN STOCK.

NEW 3FGX 15" MultiSync Monitor

IN STOCK.

NEW 5FG 17" MultiSync Monitor

IN STOCK.

**\$CALL
FOR
NEW
LOW
PRICES**

Lapis

SE, SE/30 & Mac II Display Cards **\$CALL.**

Umax

UC630 600dpi Color Scanner **\$1240.**

w/Photoshop (full version)

Transparency/Slide Scanner Option **\$CALL.**

Automatic Document Feeder **\$CALL.**

Fusion Data Systems

TokaMac CI **\$CALL**

25 MHz 68040 PDS based Accelerator for Mac II ci.

TokaMac LC 25 MHz 68040 Accelerator for Mac LC. **\$CALL.**

Magnavox

Magnavox Profesional 14" Color Monitor **\$419.**

Magnavox MultiScan 17 Color Monitor **\$995.**

Supra- IN STOCK!!

Supra 2400 w/MacPac Software **\$129.**

SupraFax Modem Plus 2400/9600 **\$189.**

SupraFax Modem 14.4 v.32 bis IN STOCK **\$399.**

E-Machines

E-Machines NEW! T-16 II/SX-24 Trin. Sys. **\$1799.**

16" Trinitron w/24 bit accelerated video board

E-Machines NEW! T-16 II/SX-8 Trin. Sys. **\$1649.**

16" Trinitron w/8 bit accelerated video board. It's upgradable

E-Machines NEW! T-16 II/DoubleColor Sys. **\$1499.**

16" Trinitron w/8 bit accelerated video board. Incredible Value!

Seiko

CM1445 24 Bit Color Bundle **\$1229.**

14" RGB monitor with RasterOps 24SX 24 bit color board.

CM1445 **\$549.**

14" RGB monitor

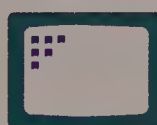
DayStar Digital

Universal PowerCache 33MHz **\$579.**

Universal PowerCache 40MHz **\$795.**

Universal PowerCache 40MHz w/68882 **\$999.**

Universal PowerCache 50MHz **\$1145.**



MacOutlet

GRAPHICS DISPLAY SYSTEMS SPECIALISTS

48860 Milmont Drive #103C

Fremont, CA 94538

(510) 623-8890 Fax (510) 623-8894

SPECIALS!! E-Machines

T-19 sx System **\$2395**

T-19 mx System **\$2895**

CALL TOLL FREE
800-622-6885

CALL FOR FREE CATALOG

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

Peripherals

"P-Shooter Scores Direct Hit."

New P-Shooter provides the most advanced Network star power for anyone using the Phone wire based Local Talk (PhoneNet) connectors .

The P-Shooter is the only Hub that re-clocks, re-shapes and regenerates data packets. Increasing your network performance to warp speed.

Our sophisticated circuitry does not require cumbersome statistical management software, or special control wiring to operate. We Guarantee it !

So if the stars are in your future, why pay for the Moon and get an old asteroid .

800-726-6462 Toll Free 408 - 270-3200 International

PCon Inc. 2984 Calle de Las Flores, San Jose CA 95148



- PCon's "P-Shooter"
Network Star Controller

(800) 726-6462

(408) 270-3200 International (408) 274-4504 Fax

Call Now!

Memory Upgrade

CIRCLE 576 ON READER SERVICE CARD

Memorable Additions

FAX /MODEM

HARD DRIVES

MAC PORTABLE RAM

SIMMS & VRAM

CACHE CARD

POWERBOOK MEMORY

For All Macintoshes

IIci & IIsi

**ADD★ON
AMERICA**
A DIVISION OF ROHM CORPORATION

433 N. Mathilda Ave. Sunnyvale, CA 94086

Phone: 1~408~746~1590

Fax: 1~408~746~1593

For instant product info via
ROBOFAX Day or Night
Call 1~800~424~3299

1 ~ 800 ~ 292 ~ 7771

CIRCLE 577 ON READER SERVICE CARD

Monitors

**Specialists in
LCD Projection** **BUY•LEASE•RENT**

- ◆ Mac / PC / Video Projection
- ◆ Stand-alone & Overhead
- ◆ Active & Passive Matrix Panels
- ◆ Full Line of Overhead Projectors
- ◆ Full Line of Presentation Accessories

Call Now For a FREE Catalog!



Panelight
DISPLAY SYSTEMS, INC.

1.800.726.3599
IN SAN FRANCISCO CALL: 415-772-5800

1040 Ferry Building, #263 San Francisco, CA 94111

CIRCLE 578 ON READER SERVICE CARD

Graphics

**Make
Life Easier**

**Take Off The Blindfold
TODAY!**



Kudo Portfolio: Introducing

3 software utilities to help you see what you're doing

- **PICTpocket™**: The simplest image browser. Quickly organize and locate mixed-media image files. Creates icons that look like your images.
- **Kudo® Font Book**: The no-nonsense way to compare your fonts. Print and see samples of all fonts on your system. Easy comparison. Easy selection.
- **Kudo® Image Convert**: Expand your image sources. A simple click and drag converts files from almost any source.

Special Introductory Offer: All 3 ONLY \$79.00!

Free Imaging Reference Guide with Order!

24-hour Response: Mention ad code 18

800-949-4555 or 619-272-0593



IMSPACE SYSTEMS™
Now You See It

CIRCLE 579 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Computer Systems

MAC PROFESSIONAL

PLEASE CALL FOR MACINTOSH NEW PRODUCT LINE

(818) 719-0007

We guarantee
best pricing.

FAX (818) 719-9115

Power Book 180	Call	13" Apple Color	\$ 587	Laserwriter LS	\$ 877
Power Book 170	Call	14" Magnavox	\$ 427	Laser Writer NTR	\$1627
Power Book 160	Call	15" NEC 3FGX	\$ 667	Laser Writer IIF / IIG	Call
Power Book 145 4/40 ..	\$1997	15" NEC 4FG	\$ 757	HP Diskwriter Color ..	\$ 607
Power Book 145 4/80 ..	\$2297	16" Sony	\$1037	NEC 2/95	\$1417
Power Book 145 8/80 ..	\$2497	16" Apple	\$1177	U MAX 630	\$1077
Quadra 950 8MB	Call	16" Raster Ops	Call	U MAX 1200	\$2997
Quadra 950 8/240	\$5997	17" NEC 5FG	\$1399	PLI 88 MB	\$ 517
Quadra 950 8/420	\$6277	17" Super Mac	\$ 997	Syquest 44 MB	\$ 437
Quadra 700 4/105	\$3777	20" Radius	\$1877	SPECIAL! SIGMA Design Monitor for Power Book	\$ 877
MAC II CI 5/120	\$2527	20" Super MAC	\$1557		
MAC II CI 8/240	\$2777	20" Radius Trini	\$2697		
MAC II SI 3/40	\$1497	20" Raster Ops Trinitron			
MAC II SI 5/80	\$1747	Dual Scan	\$2277		
MAC LC II 4/40	\$1177	20" Super MAC	\$2477		
MAC LC II 4/80	\$1277	21" Radius	\$2997		

1 Year Warranty.
Please call for current prices.
We sell only new products.
19801 Ventura Blvd., Woodland Hills, CA 91364
Dealer & International orders welcome.

CIRCLE 580 ON READER SERVICE CARD

Scanners

What You See IS What You Get

The most effective and economic desktop scanning solution for the professional who demands the highest resolutions for scanning crisper, more realistic color and line-art images.

Choose from these features and see for yourself: 8.5" X 14" flatbed scanner with a single light, 3 pass scanning that offers 24, 16 and 8 bit support for color, grayscale and line art modes.



The SpectrumScan comes in 3 configurations to meet your needs:

800 dpi resolution for both 24 bit color and line art
1600 dpi for 32bit color and 3200 dpi for line art
2400 dpi for 32bit color and 4800 dpi for line art

International and domestic dealer inquiries welcome, please contact:

SPARK Trading International, Inc.
1939 Waukegan Road, Ste 107
Glenview, IL 60025 — USA
Tel (708) 998-6640 • Fax 998-8840

SPARK ComputerGrafik, GmbH
HammerLand Straße 18
2000 Hamburg 26 — Germany
Tel 49 40 251 80 85 • Fax 251 80 88

CIRCLE 581 ON READER SERVICE CARD

Astrology

ASTROLOGY

For Fun Or Profit

McHoroscope McForecast

Amazing predictions! Generates full, descriptive paragraphs reports \$199.50

Io Edition

An advanced program that will delight both the professional astrologer and the serious student!

\$249.50

Time Cycles Research

27 Dimmock Rd Waterford, CT 06385 (203) 444-6641

CIRCLE 582 ON READER SERVICE CARD

Games

TRISTAN Pinball

A Digital Simulation For The Color Macintosh.

TRISTAN Features

- Authentic Ball Action
- Wild Pinball Devices
- Fabulous Sound
- TILT and Much More!...



To Order:
Contact your
retailer or call
(613) 967-7900

"(TRISTAN) should be a big winner" - John Sculley

AMTEX

Amtext Software Corp. • 206 George St. • Belleville Ontario Canada K8N 3H4 • fax (613) 967-7902

CIRCLE 583 ON READER SERVICE CARD

Kids' Games

Kids Love

Foo Castle!



The exciting and educational point and click adventure!

This MacroMind-based game, with full color and sound, entertains 3-10 year-olds for hours.

- Amazing 8-bit animation
- Time and alphabet learning games
- Full digitized sound
- Fun action in every room

Requirements: Macintosh Classic II, LC, SE/30, Mac II Series or Quadra.
2 MB RAM minimum. 8-bit color graphics. System 6.05 or later.

Retail Price ~~\$59.95~~

Special Introductory Price \$39.95

O'Connor House Software
2207 S. Gladys Ave.
Appleton, WI 54915
(414) 734-0259

CIRCLE 584 ON READER SERVICE CARD

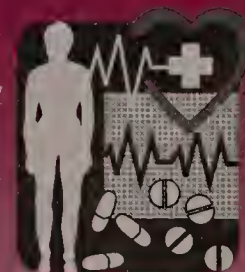
Personal Finance

Are you getting all your health benefits?

macClaimCheKTM

The Health Insurance Tracker

- ✓ Multiple plan carry-over
- ✓ Multiple coverage/persons
- ✓ Add-on claim print modules
- ✓ Status by person, plan, or item
- ✓ Reports for claimed/unclaimed & paid/unpaid items
- ✓ Macintosh or Windows



Te Corporation
POB 140
Campton, NH 03223

(603) 726-7177 fax: (603) 726-8818

Developers of software for everyday living

\$44.99 + \$5.00 S/H

CIRCLE 585 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Astronomy



New Version!

Voyager II

the Dynamic Sky Simulator™

Now Available! Voyager II - with powerful new features, striking sky pictures, and dynamic planetary animations. Voyager II is an educational tool which will provide years of wonder and discovery.

Nothing Compares \$159.95

Requires Mac with 1 meg of free RAM, hard disk.
System 6.0.5 to 7.0. Color recommended.
Upgrades available.

Carina
Software

830 Williams Street
San Leandro, CA 94577
(510) 352-7328

CIRCLE 586 ON READER SERVICE CARD

Screen Saver



SCREENSAVOR™ THE NEXT PLACE TO GO AFTER DARK™

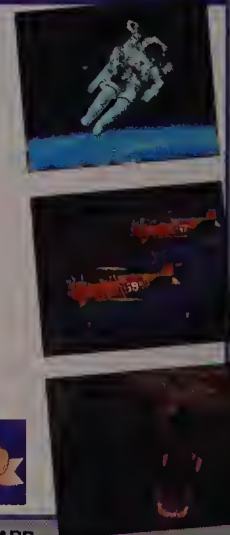
ONLY \$49.95
SCREENSAVOR STARTER KIT

Get the picture with ScreenSavor, the first full-color, photo-based screen saver. An After Dark accessory, ScreenSavor features bright, sharp images from renowned photographers, including Chris Newbert and Ray Atkeson. ScreenSavor's unique transition effects alternate images that are available in a wide variety of themes:

- ✦ Nasa/Space
- ✦ Aircraft
- ✦ Trains
- ✦ Undersea
- ✦ Wildlife
- ✦ Landscapes
- ✦ People
- ✦ Furry Friends

Requires Mac LC or higher with 2.5 MB RAM.

After Dark is a trademark of Berkeley Systems, Inc.
ScreenSavor is a trademark of MIFP Development.



ORDER
TODAY

1-800-697-6437
OR FAX (503) 228-9707

CIRCLE 587 ON READER SERVICE CARD

CD ROM

Recycle
your
SyQuests!

and other media

ISOMEDIA

Optical Data Storage Specialists
14808 NE 31st Circle
Redmond, WA 98052
(206) 869-5411
(206) 869-9437 Fax

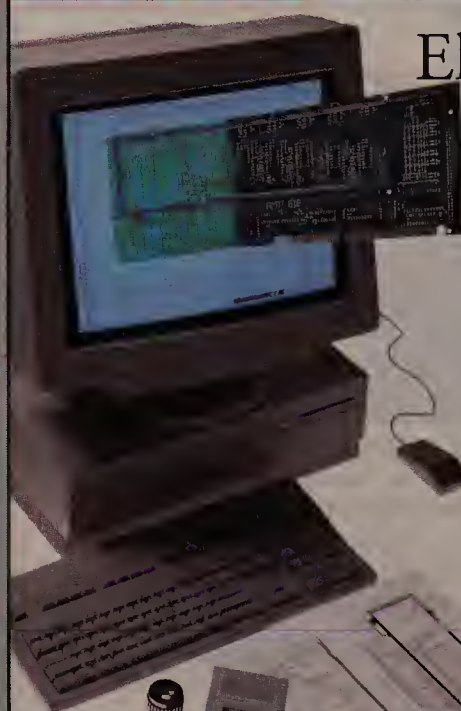
All registered and unregistered trademarks are the sole property of their respective owners.
© 1992 ISOMEDIA, Inc.

If you use SyQuest cartridges for permanent data storage... STOP! We can transfer up to 640MB of information to just ONE CD-ROM!
-For just \$269.00!!

We will take your cartridges, DAT, Exabyte or other media, and within 3 business days create a PersonalCD. If you can't be without your media, ask us about our Tape Drive Loaner Program. Call for details and ordering information. Return shipping is free. Save money, get your data secured, and make it accessible instantly...
Get a PersonalCD made for you today!

CIRCLE 588 ON READER SERVICE CARD

CAD/CAM



Electronic Design

- Schematic Capture
- Digital Simulation
- Parts Placement
- Manual Routing
- AutoRouting
- Board Manufacturing
- Photoplotting

Douglas CAD/CAM

Douglas Electronics, Inc.
2777 Alvarado Street
San Leandro, CA 94577
(510) 483-8770
FAX (510) 483-6453

CIRCLE 589 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

GOODMAN MUSIC



FEATURING

KORG

World's Largest Selection of Keyboards, Synthesizers,
Interfaces, Samplers, Sequencers, Drum Machines,
Music Software, DAT Machines, Multitrack Recorders,

& MIDI

For Your Computer

CALL 1(800)842-4777

[in CA. (310) 429-9795] ASK FOR MAC



CIRCLE 590 ON READER SERVICE CARD

"Now The Best Mac Desk Is Tailored For You."

Introducing ergonomically crafted,
fully adjustable Macintosh desks from the
"Best Mac Desk" people.

CALL TOLL
FREE (800)
688-2446

FREE CATALOG!

503.690.1400 FAX 503.690.1444



agio
BEAVERTON, OREGON

CIRCLE 591 ON READER SERVICE CARD



Furniture

Batteries

New Mac Powerbook 170/140 Battery

For Only
\$89.95

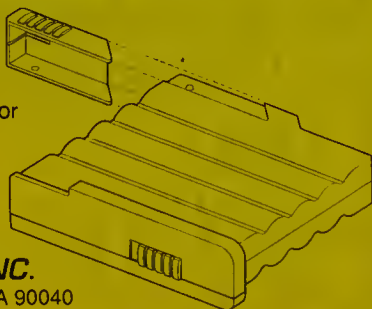
with
25% More Run Time

QUICK-LOCK FEATURE

- Eliminate the need for the removable door latch as used on Mac's Original Battery.

HARD PLASTIC COVER

- Prevents the contact shorting problems.



BATTERY TECHNOLOGY, INC.

5700 Bandini Boulevard, Commerce, CA 90040

1(800) 982-8284

Open Monday - Friday; 8:30 am - 5:00 pm PCT

Tel: (213) 728-7874 • Fax: (213) 728-7996 (Fax Orders are Accepted)

Payment-Accepts Visa or Master Card \$5.00 Service Charge for COD. Shipping-No shipment Charge for order over \$ 500. Prices & Conditions are subject to change

DISTRIBUTORS & DEALERS WELCOME

CIRCLE 592 ON READER SERVICE CARD

Utilities

The Economical Inkjet Printer Refill

Introducing JetInc.™ from DGR Technologies
The refill unit for your Apple StyleWriter &
Hewlett Packard DeskWriter inkjet printer

Colors Available: Black,
Brown, Blue, Red, & Green

Black Refill Twin Pack

\$15.99



DGR Technologies

1-800-235-9748

Tel (512) 476-9855 • Fax (512) 476-6399

1219 West Sixth, Suite 205 • Austin, TX 78703



CIRCLE 593 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

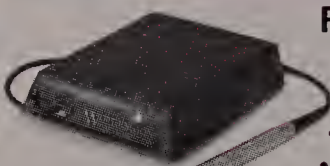
Hardware Bar Code

WORTHINGTON
DATA SOLUTIONS

BAR CODE READERS

BAR CODE READERS

- Top rated by Independent review!
- Optional Magstripe Input
- 1 or 2 scanners per reader
- Complete with Laser Scanner - \$1389
- Complete with Steel Wand - \$399



PORTABLE BAR CODE READERS

- Battery Operated Reader
- 64K or 256K Memory
- 2x16 LCD, 32 Key Keyboard
- Complete 64K Unit with Laser - \$1734
- Complete 64K Unit with Wand - \$799



- For all Macintosh models. European Keyboards Supported
- Attaches through ADB as Second Keyboard
- Wand, CCD or Laser input
- 2of5, UPC/EAN, 128, MSI, Code 39

- 2 year warranty
- Same day shipping, Free UPS Blue
- 30 day money back guarantee

"The WDP Reader is highly reliable and easy to use."
Brett Fifield, Bitstream Inc.

Call Toll Free in the USA or Canada
800-345-4220

European Office:
Rütistrasse 6
9050 Appenzell, Switzerland
71 87 51 15
71 87 51 17 Fax

USA Headquarters:
3004 Mission Street
Santa Cruz, CA 95060
408-458-9938
408-458-9964 Fax

CIRCLE 441 ON READER SERVICE CARD

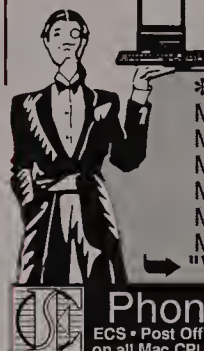
**Reach
500,000
Shoppers in
the
MW Shopper**

Computer Systems

ELITE COMPUTERS & SOFTWARE, INC.

Buy • Sell • Trade • Lease • Repair • Service

"Macintosh Remarketing Specialists Since 1987"



HUGE CLEARANCE SALE!

Mac Plus / Classic\$299/674	Quadra 900 / 950 ...\$3719/5039
Mac SE 1-20 / SE30 ...699/1499	PowerBook 100 (NEW!) ..699
Mac LC / Mac LC II784/974	PowerBook 140/145 .1584/1784
Mac IIsi / Mac II1284/1199	PB170 / 13" Hi-Res3124/529
Mac IIfx / Mac IIx1599/1799	ImageWriter II / LQ249/349
Mac IICI / Mac IIfx1999/2899	LaserWriter / LW Plus 899/1199
	LaserWrttr IINT / NTX 1399/1699

"We'll Beat Any Dealer Price On Anything, Anywhere!!"

Phone: 408-725-1556 • Fax: 408-973-1483

ECS • Post Office Box 756 • Cupertino • CA • 95015-0756 • Hours: Mon. - Fri. 8:00-6:30 • 1 year limited warranty on all Mac CPUs. Prices are subject to change without notice. These are cash prices. Quantities are limited.

CIRCLE 493 ON READER SERVICE CARD

MacBYTE

Buy • Sell • Trade Macintosh Computers

Preowned Macs with Warranty
Cash For Your Mac or Peripheral
Low & High End Custom Setups
FAX 310-317-1583

800-432-BYTE
Open Monday - Saturday
22775 PCH, Malibu, CA 90265

CIRCLE 428 ON READER SERVICE CARD

BAR CODE & MAGNETIC STRIPE READERS FOR MACINTOSH PLUS, SE & II

Connects on keyboard or ADB
Requires no additional program or port
Does not affect keyboard or mouse
Industrial quality, heavy-duty units
Also available
SmartCard encoder/reader
Magnetic encoder
Code 39 UPC & Printing Software
Portable Bar Code Reader

TPS Electronics
4047 Transport Street
Palo Alto, CA 94303
415-856-6833 800-526-5920
Telex: (Graphnet) 371 9097
FAX: 415-856-3843

CIRCLE 441 ON READER SERVICE CARD

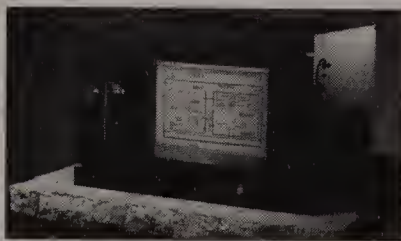
Computer Systems

RACKMACS™

GreenSpring expands its line of industrial Macintoshes® to include the LC II, Classic II and Quadra 700.

Classic II and LC II systems combine monitor and CPU in one rack or panel mountable enclosure.

Available rack mounted Mac processors now include IIfx, IIfx and Quadra 700. Touchscreen option available on rack mounted monitors. Rack mounted keyboard drawer/mouse tray unit also available.



RackMac LC II

GreenSpring Computers
1204 O'Brien Drive, Menlo Park, CA 94025
Tel (415) 327-1200
Fax (415) 327-3808

CIRCLE 519 ON READER SERVICE CARD

Sun Great Prices on Used Macs

Big Savings
CPUs
Drives
Monitor
Modem
Much More
Call 1-800-821-3221

Super Savings
Don't pay higher than necessary. Never be charged outrageous prices again.
Only \$395

CIRCLE 424 ON READER SERVICE CARD

Free Catalog Used Macintosh Computers

While all the others come and go, we keep doing what we do best. We've been refurbishing and selling used computers for ten years. Our quality control department assures you the best machine available for the money—or your money-back—guaranteed.

Call Anytime
1-800-821-3221

PO Box 4059
Logan, UT 84323-4059
Fax: (801) 755-3311



Try Us Free 1-800-858-4MAC

G.T. Industries

California: (818) 785-2800

FAX: (818) 908-5334

**We DEAL on
MAC's & More!**

SPECIAL

MAC IICI/4MB/80HD\$2295
MAC IICI/4MB/230 HD\$2690

- Free Upgrades
- Macintosh
- RasterOps
- GCC
- Microtek
- Radius
- H.P.
- NEC
- QMS
- NewGen
- DayStar
- SuperMac

- Ikegami
- E-Mach
- Syquest
- Asante
- Sharp
- and More

Complete
Service
Department
Trade-ins are
Accepted

CIRCLE 430 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

CATALOG

MACWORLD
MWShopper

Computer Systems

Computer Design & Graphic Systems™



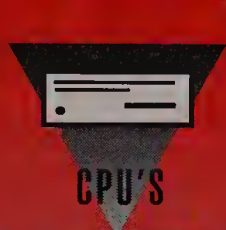
MONITORS



PRINTERS



STORAGE/MISC.



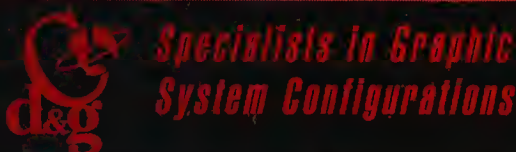
CPU'S



DISPLAY CARDS



SCANNERS



12734 Kenwood Center • Ft. Myers, FL. 33907

Over 2,700 products for the serious... Graphics User!

800 741 6227

LOCAL: 813-278-3160 • SUPPORT: 813-278-4964 • FAX: 813-278-5161

CIRCLE 406 ON READER SERVICE CARD

COMPUTER REVELATIONS INC.

1461 Lakeland Ave
Suite 5
Bohemia, NY 11716

We Pride Ourselves On
Customer Satisfaction!

Classic II 4/40 4/80.....\$1229/1399
Classic II 3/40 5/80.....CALL
Classic II 5/0 5/120.....\$2349/2699
Quadra 700 4/120.....\$4499
Quadra 900CALL
Quadra 950.....CALL
Performa 200/400/600....CALL

1-800-275-9924

Phone 516-244-8590

Fax 516-244-8594

StyleWriter.....\$339
Personal LS/NTR...\$929/1659
P Deskwriter/Color•\$395/699
Laserwriter IIF/IIG•\$2599/3399
Powerbook 145.....CALL
B 170 4/40,8/80•\$3599/3999
P Scanjet IIP/IIC...\$899/1395
Apple 13" RGB.....\$649
Sigma-Design portrait.....\$799

Call for hard to find parts!

NEW AND USED
BOUGHT AND SOLD

We also offer
E-MACHINE, GCC, RADIUS
SONY, UMAX, NEWGEN,
QMS, NEC, SIGMA-DESIGN

Macintosh

Classic II 4/40	\$999
Classic II 4/120	\$1199
LC II 4/40	\$1149
LC II 4/80	\$1249
LC II 4/120	\$1349
SI 3/40	\$1519
SI 5/80	\$1759
SI 5/120	\$1829
CI 5/80	\$2389
CI 5/425	\$2999
QUADRA 700 4/425	\$4219
QUADRA 950 8/16IG	\$6749



Powerbooks

145 4/40	\$1979
145 4/80	\$2249
145 4/120	\$2449
170 4/40	\$3399
170 4/80	\$3649
170 4/120	\$3849

Printers

StyleWriter	\$329
Laser IIF	\$2420
Laser IIG	\$3250

SONY

1320	\$329
1304s	\$569
1604s	\$989
1936	\$1999

Radius

Pivot Mono	\$669
Pivot LE	Call
19" Mono	\$899
21" Mono	\$1129
19" Color	\$1599
20s Color	\$2499
21" Color	Call
24xp Card	\$489
24xk Card	\$799
24x Card	\$1199
Rocket 33	\$1899

Great Buys

20MB 2.5"	\$89
40MB 2.5"	\$169
40MB 3.5"	\$139
80MB 3.5"	\$269
80MB 2.5"	\$399
400MB 3.5"	\$899
16IG 3.5"	\$1349
24GX 24BIT	\$349
Toshiba CD	Call
Syquest 44	\$399
Syquest BB	\$569

SuperMac

Accelerator	\$79
Thunder Storm	
Plus Card	\$2899
20" Display	\$1429
21" Display	\$2599

QMS

PS-410	\$1399
PS-B15	\$2699
PS-B15MR	\$3599
PS-860	\$3899
ColorScript	Call

Scanners

One Scanner	\$999
Umax 600	\$1199
Mtek 600zs	\$999
Mtek 800zs	Call
JX-450	\$4159
JX-600	\$9989

Micro USA

(310) 473-2535

FAX US AT (310) 473-5236

NO CREDIT CARDS PLEASE.

CIRCLE 427 ON READER SERVICE CARD

ESTABLISHED 1981

MACINTOSH CPU'S

CLASSIC II.... CALL	IICi 5MB Ram..2245.
LC II 4/80..... 1295.	IICi 5/40.....2395.
IISI 3/40..... 1495.	IICi 5/120.....2595.
IISI 5/80..... 1795.	IICi 8/240.....2995.

QUADRA'S

700 4/120.... 3795.	IIVX..... CALL
700 8/240.... 4095.	IIVI..... CALL
900 4/120.... 4295.	100 4/40.....1095.
900 8/240.... 4565.	145/160 IN
950 8/240.... 6295.	170/180..... STOCK
950 20/520... 7295.	210/230..... CALL

SUPERMAC

SuperMatch 17" 1045.	Full line Ava. please
SuperMatch 20" 1675.	20" Trinitron call for
SuperMatch 21" 2475.	21" Trinitron pricing

APPLE PRINTERS

LSRWTR NTR... 1675.	JX-320..... 1495.
LSRWTR IIF.... 2495.	JX-450..... 4195.
LSRWTR IIG.... 3250.	JX-610..... CALL

Hi-End printers

RasterOps CorrectPrint 300 32MB	8795.
Newgen 1200 DPI 11x17	11,900.
QMS ColorSript 100 Mod-30i	6795.
QMS 825MR	4095.

SCANNERS

Umax UC-630 600dpi+Adobe	1195.
Spark 2400dpi+Adobe Photoshop	2375.
Microtek 600ZS+Adobe Photo.	1195.



19" + 8 Bit
.....1895.00

19" + 24 Bit
.....2395.00

With Pan, Zoom, Virtual Mem.

DEALERS AND INTERNATIONAL SALES WELCOME.
Best Prices, Service, Delivery! Call or fax for best quotes

DATA MICRO
COMPUTER
TEL: (310) 398-3300
FAX: (310) 391-2488
3847 Grand View Blvd. LA, CA 90066

CIRCLE 508 ON READER SERVICE CARD

TOP QUALITY PRODUCTS TOP QUALITY SERVICE

SYSTEMS

Classic II 4-40	999
LC II 4-80	1299
Mac II CI 5-120/420	2675/Call
Mac II SI 3-80/5-120	1545/1995
Quadra 700 4-425	4345
Quadra 700 4-120	3799
Quadra 950 20-520	Call
Powerbook 145 4-40/4-80	Call
Powerbook 170 4-40	Call
Powerbook 170 2-80	3399

MONITORS

Sony Trit. 1304/1604	599/1059
Radius 21" Color	2889
Radius Pivot Color	Best
Radius Precision 24xCard	1645
Supermac 20"/21"	1525/Call
E-Machine T16 MR	Call
Gen-Sys 20" Trit.+8 Bit	2399
Rasterops in Stock	Call

PRINTERS

Appl. IIF/IIG/NTR	Call/Best/1599
Nec Silentwr. 95	1399
QMS 410	Call
QMS 815/815MR	2689/3569
NewGen PS-410/840	1699/Call

STORAGE

SyQuest 44/88	465/Call
PLI 44/88/Optical	599/Call/Call

SCANNERS

UMAX UC 630/1200	1145/Call
Microtech 600Z/1850S	Call

WE WELCOME INTERNATIONAL & DEALERS

COMPUTER POWER HOUSE
Tel (310) 474-6636 • FAX (310) 474-4665
FOR ORDERS 1-800-875-POWER 7693
ONLY 1880 Westwood Blvd., LA, CA 90025
Mon. - Fri. 8:30 To 6:30 Sat. 10:00 To 5:00

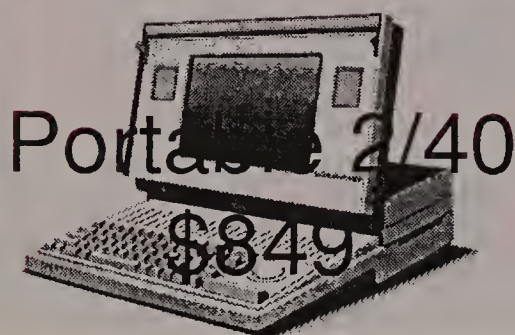
CIRCLE 423 ON READER SERVICE CARD

Continued...

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Computer Systems

Demo Mac Truckload Sale!

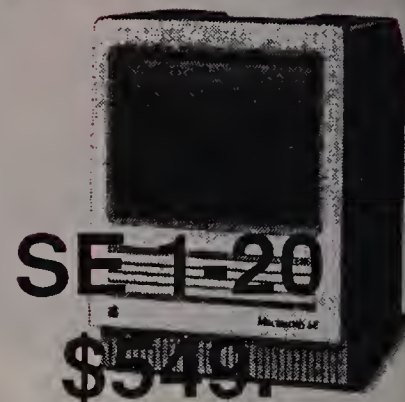


Systems

Plus.....\$379.
SE 1-floppy....479.
II 0/0.....1099.
LC 2/0.....699.
IICX 0/0.....1399.
IICI 0/0.....1799.
IIFX 0/0.....2899.

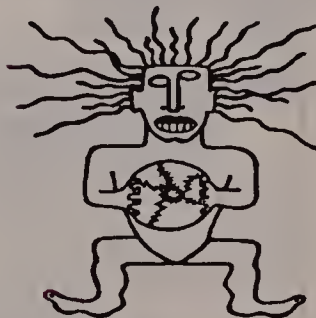
Parts

Mac Plus ROMS...\$159.
800k floppy mech....89.
1.44 floppy mech....279.
Plus power supply....89.
Appletalk PC card....49.
SE analog board....149.
Plus logic board.....149.
SE logic board.....149.
LC logic board.....449.
Laserwriter IIInt lb....229.
Mac II logic board....549.



Upgrades

IICX to IICI.....\$799.
IICX to Quadra 700.....2499.
IICI to Quadra 700.....1999.
Mac 128,512 to plus.....299.
Mac 512ke to plus.....179.
Mac LC to LCII.....399.
SE 800k to FDHD (ROM only)..99.



Video Boards

Apple 8-bit.....\$99.
Apple Portrait.....99.
Apple 2-page mono..99.
Rasterops 264.....269.

Printers

Laserwriter\$799.
Laserwriter Plus....\$999.
Laserwriter IIInt...\$1299.
Laserwriter IIIntx..\$2099.

Shreve Systems

3804 Karen Dr Bossier City LA 71112
FAX 318-742-2799 Tech 318-742-0546

800-227-3971

CIRCLE 425 ON READER SERVICE CARD

WANTED: USED MAC's

WE BUY YOUR USED MAC EQUIPMENT FOR TOP DOLLAR, CASH! WE SELL REFURBISHED MAC's AT DISCOUNT! CALL FOR QUOTE. **RENTEX INC.** (800) 545-2313, (617) 423-5567

CIRCLE 521 ON READER SERVICE CARD

ACCESS II

USED MAC EQUIPMENT

DON'T BUY OR SELL ANY NEW OR USED EQUIPMENT UNTIL YOU TALK TO US.
WE DEAL EXCLUSIVELY IN MACINTOSH SYSTEMS AND PERIPHERALS.

800-662-5606

26 KEEWAYDIN DRIVE SALEM, NH 03079

CIRCLE 469 ON READER SERVICE CARD

the mac store

Best Prices In Canada Since 1989
No Customs Hassles
The Best Warranty In The Business
Same Day Repair/Replace
Satisfaction Or Money Refunded
True Mac Experts On Staff
All Major Hardware, Software
Service Contracts

(416) 466-8107 (800) 268-7805

CIRCLE 426 ON READER SERVICE CARD

MAC WEST

1992 - MAC LEADER

CALL US LAST

☆ Powerbooks ☆ Quadra ☆ Printers

☆ IICI ☆ IISI ☆ IIFX ☆ Monitors

F U L L L I N E

(310) 470-7099

Fax: (310) 470-8099
10837 Santa Monica LA, CA 90025

CIRCLE 453 ON READER SERVICE CARD

CRA

700 So. University Park Drive
Suite 350
Waco, TX 76706
1 (800) 375-9000

We Buy and Sell New and
Used Systems Any Quantity

Phone 817-754-2120 / FAX 817-754-2345

New Macintosh CPU's (LC, Si, Ci, Fx, Quadra 700, 900 & 950, Powerbook 100, 140, 170)
Used & Demo Macintosh CPU's (SE, SE30, Portable, II, Cx, X, Ci, Fx)

CLEARANCE SPECIALS

Apple LaserWriter IIInt, Nix, IIf, IIfg	Call	FastPath 4 Ethernet Router NEW	\$1199
Mitsubishi G370-10U Color 300dpi		Howtek Scanmaster w/Trans Opt. NEW	\$3999
w/Freedom of the Press Postscript driver	\$3999	HP Scan-Jet 400dpi 16GS DEMO	\$899
QMS Colorscript 100-10 DEMO	\$5500	Laserwriter Plus Upgrade Roms NEW	\$399
QMS PS Jet Plus 8ppm Postscript Laser	\$1799	Maxtor 650 meg SCSI NEW	\$1499
Supermac 19" Color New & Used	\$1999	Mirus & Agfa Film Recorders	Call
E-Machines Color Page 15" w/8 Bit	\$1100	Wren Hard Drive Blowout	Call
Mitsubishi 16" 1024 X 768 w/8bit	\$1599	Mac IIx 5/40	\$2399
RasterOps Trinitron, 8 & 32bit	From \$2299	Mac II w/040 Accelerator	\$3499
Sony 1908 Industrial Trinitron NEW	\$2699	Adobe Type Manager	\$54
Sony 19" Trinitron DEMO	\$1999	DiskFit v.1.5	\$45
600 X 600 DPI Postscript Laser	\$2499	MacDraw II (w/free Pro Upgrade)	\$279

CIRCLE 467 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

CATALOG

MACWORLD
MWShopper

Computer Systems

YOU'RE HAVING A
**MAC
ATTACK**

Let Mac•In•Stock Satisfy It!
Our competitive prices include:

1. Service

Work with a Mac pro,
not an order taker.
Expert help ensures the
right choices for your
needs and budget.

2. Selection

Classic II or Quadra.
Custom or standard.
Apple or third party.
We'll help you build
your system, your way.

3. Safety

Mac•In•Stock is the only
dealer who will bench
test your system, and use
double boxes for
safe shipment.

4. Support

Tech support is toll free.
Repairs or replacements
are handled via Federal
Express (in and out
at our expense).

Hours:
Weekdays 10 a.m. - 8 p.m. est
We accept Visa/ MC/AMEX
Cash discounts.

Int'l: 305/321-0904
Fax: 305/321-0905

800-944-6227

Mac•In•Stock

CIRCLE 457 ON READER SERVICE CARD

MACMARKET
800 • 223 • 4 • MAC

- Toll free technical support •
- Free Shipping for all CPU Repairs in U.S. •
- Free Shipping in California •

**We only sell
New Systems
with a full one year warranty**

- Visa, MC & Discover add 2% •
- You are not charged until your order is shipped •
- Prices are subject to change without notice •

In California call:

TEL: 818 • 708 • 6388
FAX: 818 • 708 • 6399

Call for the New Macintosh Line!

PowerBook

145 4/40 \$2045
145 8/80 \$2545
145 8/120 \$2745
170/180 Call

Classic II

4MB/40HD \$999
4MB/80HD \$1125

LCII

4MB/40HD \$1145
4MB/80HD \$1270
6MB/160HD \$1599

Mac IIcx

8MB/160HD \$2775
8MB/230HD \$3145
20MB/425HD \$3695
20MB/1gbHD \$4365

IIx

3MB/40HD \$1545
5MB/80HD \$1775
9MB/160HD \$2121

Quadra 700

8MB/160HD \$3995
8MB/230HD \$4325
20MB/425HD \$4895
20MB/1gbHD \$5595

Quadra 950

8MB/120HD \$5895
8MB/240HD \$6245
32MB/425HD \$7195
64MB/1gbHD \$8875

Apple Monitor

13" Color \$595
16" Color \$1195

SuperMac

Thunder 24 \$2295
ThunderStorm \$789
T Storm Pro \$2995

Spec. 24 III

Spec. 24 pdq \$1579
Spectrum 8.24 \$828

20" Color

20T Color \$2445
Platinum 21" \$995

Sony Monitor

1320 Color \$385
1304s Color \$629
1604s \$1088

Radius

Pivot Mono \$729
Pivot Color \$1255
Pivot LE \$822

NEC

3FGx Monitor \$665
4 FG Monitor \$785
4 FG Monitor \$1445
Silentwriter 95 \$1385

E-Machine

SX/MX 489/799
Double color Lx 635
T16 II MR 1275

Apple Printer

StyleWriter \$345
Laser NTR \$1679
Laser IIF \$2495
Laser IIG \$3245

NewGen

400P \$1639
660P \$2579
880 \$3295

TI Printer

PS17, 2.5MB \$1299
PS35, 2.5MB \$1399
Turbo, 2.5MB \$1649

LaserMaster

All Models Call

HP

DeskWriter \$345
DeskWriter C \$615
HP IIx \$4349
scan. IIC + \$1275

Microtek

TrueLaser \$1195
ScanMaker II \$849
ScanMaker XE \$1095

UMAX Scann.

UC 630 \$1095
UC 1200s \$3249

PLI Infinity

40 MB w/cart \$549
88 MB w/cart \$679
Optical 128M \$1499
4GB DAT Ext. \$1699
21Mb Floptical \$439

Asante

10BaseT Hub \$249
64K Ether \$219
EN/SC 10BT \$249
EN/SC PB \$275

Wacom

12x12 SP-300 \$715
12x18 SP-300 \$1058
SIMMs as low as
1MB/4MB \$33/99
16MB \$479
PwrBook Simm Call
PwrBook 2MB \$85

CIRCLE 420 ON READER SERVICE CARD

Mac

S • A • L • E
INTERNATIONAL
New Jersey

Entire Macintosh Line
New and Used, Bought and Sold
Latest models in stock!

1-800-729-7031

Compare Our Prices, Quality & Service.

◆ **WE'LL PAY CASH FOR YOUR MACINTOSH EQUIPMENT** ◆

Any Quantity/New and Used

Call
For
Specials

Ask About

MAC II
MAC LC
MAC II CX
MAC II SI

MAC PORTABLE
POWERBOOK 140
MAC PLUS
LARGE MONITORS

APPLE LASERWRITERS
HP-DESKWRITERS
QMS PRINTERS
APPLE & HAYES MODEMS

CIRCLE 401 ON READER SERVICE CARD

Continued...

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

Computer Systems

1-800-334-KIWI

Classic II 4/120mb.....\$1249
Mac LC II 4/40mb with
14" color monitor.....\$1599
Mac LC II 4/120mb with
14" color monitor.....\$1799
Mac IIsi 5/120mb with
14" color monitor and
MacPro keyboard.....\$2399
Mac IICI.....Call
Mac Quadra.....Call
PowerBook 145 & 170..Call
Apple 40mb drive.....\$165
Apple 80mb drive.....\$299
All items new. 1 year warranty.
Most items in stock today.
Visa & Mastercard No Surcharge.
C.O.D. orders accepted.
Established 1988. Better Business Bureau member.
Kiwi Computers is not affiliated with Kiwi Software Inc.

KIWI COMPUTERS
P.O. Box 67381
Los Angeles, CA 90067
US & Canada (800)334-5494
In California (310)553-4507
Fax (310)286-9667
Mon-Fri 7.30am-4.30pm PST

CIRCLE 404 ON READER SERVICE CARD

INTERNATIONAL COMPUTER & NETWORKING

WANTED! MAC EQUIPMENT
Tel. (310) 441-9181 & Fax (310) 479-0124
WE BUY & SELL
Top \$\$\$\$ MACS Call Now!
We pay top \$dollars\$ for used Macs & Peripheral devices.
We also sell refurbished Mac systems for low prices!

CIRCLE 439 ON READER SERVICE CARD



Mac One

The Latest Macs & Hardware

Your #1 Export Source!

320 Post Ave. Westbury, N.Y. 11590

Why Buy from Mac One? Here's Why!

- Family Owned & Operated Since 1987 • No Sales Commissions!
- Safe & Reliable Worldwide Delivery*48 Hours to Europe!
- We Specialize in Exporting - No Hidden Costs or Extras!
- Our New York Location + Experience= Great Deals!
- We Stock what we sell, we are NOT 'Computer Brokers'.
- Foreign Orders 110/220V Our Specialty...Fax Us!
- No Sales Tax Due On Sales Outside New York State.

New Low Prices on Apple!
Fax or Call for Latest Discounts!

Wow! RasterOps /Trinitron 20"/24 bit Accelerated RGB \$2599!

• Apple • Asante • DayStar • E-Machine • HP • MicraTek • NewGen • PLI • Quantum
• QMS • Radius • RasterOps • SuperMac • Supra • SyQuest • Texas Instrument
• UMax • Wacom ... just to name a few! Please Call /Fax

For Personalized Service & Honest Prices, Call Mac One

516.997.4153 • Fax 516.997.4154

Sales Line Open: Monday-Friday 10am-5pm EDT N.Y.
Fax Line: Open 24 Hours- Fax us for weekly specials!

Terms: Cash prices shown/Visa/MC, add 3.5% or Check, Wire*Xtr, Domestic COD's OK.
All prices shown subject to drop-Call & compare for best quotes! All items NEW only!

CIRCLE 410 ON READER SERVICE CARD

THE BOTTOM LINE

There's no easier,
faster, or more
economical way to
get your message in
front of today's
Macintosh buyers
than to advertise in
The Macworld
Catalog.

Call:

800/888-8622

to reserve your space
today!

**Business sense... Buying direct makes sense
in today's economy. Use *the MW Shopper*
to find what you need!**

COMPU.D



IN BUSINESS SINCE 1983

6741 Van Nuys Blvd.,
Van Nuys, CA 91405

TEL: (818) 787-3282

FAX: (818) 787-2111

1-800-536-9999

CALL US FOR ALL YOUR MACINTOSH NEEDS!

QUADRA	MACINTOSH	POWERBOOK	MONITORS	PRINTERS & SCANNERS
950 8/0\$5495	IIci 5/0\$2250	100 2/20.....\$995	Apple 12" clr \$425	HP Deskwriter . \$395
950 8/120\$5795	IIci 5/40 ...\$2395	100 2/40.....\$1070	Apple 13" clr \$619	HP " clr . \$595
950 8/240\$6150	IIci 5/105 ..\$2499	100 2/80.....\$1320	Apple 16" clr \$1230	HP ScanJet IIC W/INT. \$1295
950 8/425\$6325	IIci 5/120 ..\$2550	140 2/20.....\$1795	E-MachineCALL	NTR\$1685
950 8/640\$6595	IIci 5/240 ..\$2895	140 2/40.....\$1850	HITACHI 20" Clr.\$1550	IIG\$2995
950 8/1.2GB ..\$6995	IIci 5/425 ..\$3195	140 2/80.....\$1995	NEC 4FG\$770	IIF\$2710
950 8/200\$5995	IIci 3/0\$1425	140 2/120 ...\$2195	NEC 5FG\$1460	NEC 2 M.95 ...\$1467
950 64/1.2G.B.\$8395	IIci 3/40 ...\$1550	145 4/40.....\$2050	RADIUD PIVOT . \$730	PLI 128 Opt. Dr. \$1499
900 4/0\$3850	IIci 5/80 ...\$1785	145 4/80.....\$2375	RADIUS Le clr. \$799	SEIKO Per Clr \$3550
700 4/0\$3395	IIci 5/120 ..\$1885	145 4/120 ...\$2695	SEIKO 13" clr \$519	UMAX UC-630 W/Adobe \$1150
700 4/105\$3660	LCII 4/40 ...\$1195	170 2/20.....\$3220	SEIKO 20" clr \$1850	PARTS
700 4/120\$3710	LCII 4/80 ...\$1395	170 2/40.....\$3320	SONY 1304 clr \$585	LOGIC BOARDS .CALL
700 4/240\$3999	CL.II 4/40 ..\$1049	170 2/80.....\$3595	SONY 1604 clr.\$1010	Printer " ..CALL
700 20/425 ...\$4695	CL.II 4/80 ..\$1175	170 2/120 ...\$3795	SuperMACCALL	CMS Mouse r. s. \$79

* Above prices are subject to change without notice ! * DEMO COMPUTERS, MONITORS, & PRINTERS AVAILABLE FOR SALE.. CALL FOR PRICE !

CIRCLE 434 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Memory Upgrade

SIMPLY THE BEST

SERVICE • QUALITY • PRICES FROM THE LLB CO.

CHECK OUR SUPER
PRICES ON SUPRAS

OPTICAL DRIVES

650mb Pinnacle Micro Opt. Drive	\$3119
Verbatim 128 mb 3.5 Cartridge	49
KOMAG 128 mb 3.5 Cartridge	45
Other Optical Drives Available	

MULTIMEDIA

RasterOps 24 STV Display Board	\$769
Mac Speaker	169
Video Spigot NuBus with Adobe	469
Video Spigot IIsi with Adobe	379
Video Spigot LC with Adobe	399
Video Spigot Pro NuBus w/ Adobe ..	1369
Video Spigot Pro IIsi with Adobe	1285
MacRecorder	239
Macromind Director 3.1	779
Adobe Premiere	304
Macromind 3D	995
Animation Works	115
Macromind Accelerator	135

FARRALLON/NETWORKING

PhoneNET Din-8 Connector	\$29
PhoneNET Din-8 Connector 10-Pack ...	195
PhoneNET Star Connector	15
PhoneNET To Local Talk Adapter Cable ..	8
StarConnector 12 Port w/Mgmt	1023
StarConnector 24 Port w/Mgmt	1295
StarConnector EN Port 10BT w/Mgmt 1355	
StarConnector EN RJ-45 AUI	135
StarConnector EN RJ-45 AAUI	102
Timbuktu 4.0 Single User ..127, 10-Pack680	
Timbuktu /Remote 3.0	127

INK JET CARTRIDGES

DGR Technologies JetInc.	15⁹⁵
Printer Cartridge Refill Unit.	
Twin Pack Black, red or blue ink.	

ASANTE/NETWORKING

Maccon+Ile MacII Thick/Thin, 64K	\$169
Maccon+Ilet MacII Thick 10Base T, 64K ..	169
Maccon Thick/10 Base T	169
SCSI Ethernet Thick/Thin 10 Base T	290
SCSI Ethernet for PB, 10 Base T	290
SCSI PB Ethernet 10 Base T w/SCSI Cable	359

CALL FOR MORE ASANTE PRODUCTS!

ACCELERATORS & CACHE CARDS

Call for the lowest prices on Day Star, Applied Engineering, & Tech Works

SYQUEST CARTRIDGES

\$63	\$99
44MB	88MB



MISCELLANEOUS

AE Quadralink	\$182	Optima 32/Software... ..	\$149
Quadra Link DMA	329	LC 16MHz Math	
Quadralink DMA/IAN	379	Co-processor	59
Quadra Video RAM 256K	35	Classic II 16MHz Math	
PMMU/MC6885	159	Co-processor	59
Maxima 2.0	44	AE Floptical (21mb)	459

ALL GOVERNMENT & EDUCATIONAL PO'S ACCEPTED UPON APPROVAL

Call Between 7AM and 6PM Pacific Time
Weekdays and 9AM to 4PM Saturdays

1-800-848-8967

The LLB Company, Inc. • 300 - 120th Ave NE, Bldg. 1,
Suite 120, Bellevue, WA 98005 • Phone: (206) 454-7258

SIMMS

1x8x80	2x8x80	4x8x80
\$30	\$56	\$98

1x8x70	\$32	4x8x80 MacIIx/II ..	\$122	4x8x70FX	\$102
1x8x100	29	1x8x80FX	32	8x8x80	279
4x8x70	100	1x8x70FX	33	8x8x80FX	279
4x8x100	97	4x8x80FX	100	16x8x80	469
				16x8x80FX	469

MAC PORTABLE SIMMS

MP30	\$449	MP40	\$519
------------	-------	------------	-------

POWERBOOK

PB100-2MB	\$99	PB140/170-4MB	\$195	Automobile Adapter	\$69
PB100-4MB	195	PB140/170-6MB	239	Carrying Case	75
PB100-6MB	269	Roadrunner 80mb		PB140/170 External	
PB140/170-2MB	95	Internal Hard Drive ..	689	Battery Charger	149

MODEMS

Quicktel Xeba Send/Rec Fax Modem QT100	\$169
Quicktel Xeba Send/Rec Fax Modem QT 200	359
AE Modem, 2400 MNP5 Send Fax	89
Global Village Teleport Full Fax	214
Global Village Powerport Gold	619
Global Village Powerport Silver	439
Global Village Powerport Bronze	219
PSI Power Modem	214
NEW! Supra 5014 S/R Fax Modem V.32 bis	359
NEW! Supra 5014 w/o Software/Cable	305
NEW! Supra 5024 2400 baud modem	74

FAX YOUR ORDER 24 HOURS A DAY
(206) 454-7302

COMPARE OUR LOW SHIPPING PRICES:

\$6 And up Overnight shipping by Airborne Express.	\$4 And up ground shipping by UPS.
---	---

- Orders received before 7:30 PM Eastern Time weekdays ship same day.
- We export to most countries in the world.
- Prices subject to change.
- Quantity pricing for dealers.
- Bank cards accepted. Your card is not charged until the order is shipped.
- All returns require approval and are subject to a restocking fee.

CIRCLE 525 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

MEMORY DIRECT!

"Don't pay Retail... buy direct"

DAYSTAR

Power Cache

		W/math chip
33mhz	\$545	\$660
40mhz	\$745	\$909
50mhz	\$1069	\$1279



Out of Memory ?

Call
Memory Direct

QUADRA

256K Vram 700/900	\$30
256K Vram 950	\$32
1 Meg 70 ns	\$32
4 Meg 70 ns	\$106
8 Meg 70 ns	\$289
16 Meg Q700	\$535
16 Meg Q900,950	\$485

HARD DRIVES

CONNER

	Int.	Ex.
42 Meg	\$209	\$279
85 Meg	\$279	\$345
120Meg	\$369	\$429
170Meg	\$409	\$474
212Meg	\$619	\$700

SYQUEST

44 Meg Kit W/ctrge	\$414
88 Meg Kit W/ctrge	\$559

Ar DAT

Tape 2.1 \$1400

FUJITSU

	Int.	Ex.
425 Meg	\$975	\$1039
520 Meg	\$1075	\$1175
1.2 Gig	\$1700	\$1779
2.06 Gig	\$2799	\$2879

If you're tired of running out of memory & bombing or want to run two programs at one time, call Memory Direct for less!

SIMMS

1x8 80 ns	\$30	8x8 70 ns	\$289
1x8 70 ns	\$32	16x8 70 ci si	\$485
2x8 80 ns	\$56	16x8 70 ns fx	\$490
2x8 70 ns	\$61	16x8 low profile	\$535
4x8 80 ns	\$102	16 Radius Rocket	\$569
4x8 70 ns	\$106	Powerbook	
		140/170 6 meg	\$275

SUPERMAC

Spect. 24 PDQ plus	\$1644	Series III	\$825
Spect. 24	\$999	PDQ	\$849
Spect. 8.24	\$575		
Spect 8	\$499		
Monochrome Card	\$349		

Supermatch

Platinum

21" 2 Pg	\$2725	21" 2 pg	\$999
20" Trin	\$2474	20" 1 f. pg	\$899
20" D.Trin	\$2449		
20"	\$1489		
17" Mult	\$1079		
17" Trin	\$1075		

RasterOps

24-bit cards

24 XLi	\$2059
24 paintboard	\$1649
paintboard Li	\$849
24 sx	\$675
Colorboard	
264 se30	\$2059

8-bit cards

8XLi	\$999
8XL	\$499

CLEAR VUE

GSXL	\$479
XL	\$329
GS30	\$669

MEMORY
UPGRADES FOR
THE NEW
PERFORMA

ASANTE

MC3NB	\$209
MC+II E64	\$169
MC+II ET64	\$169
MC3 II SI	\$209
MC+LC II	\$209
MC3 SE	\$209
EN/SC	\$319
Friendly net Adapters	
all types	\$99
10T HUB/12	\$499
10T HUB/8	\$259

800-486-2447

FAX (714)847-5043

7911 Professional • Huntington Beach, CA 92648

Prices reflect specials only. Call for complete catalog. American manufacturers upon request.

Corporate PO's Government PO's
Educational PO's Dealer PO's
Lifetime Warranty!
Highest Quality
Same Day Shipping



CIRCLE 516 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

CATALOG

MACWORLD
MWShopper



PERIPHERAL

SIMMs

PowerBook
Memory

Quadra
Memory

Video RAM

Cache Cards

Accelerators

SIMMs

1 Megabyte 70 ns	\$ 33.00
1 Megabyte 80 ns	31.00
1 Megabyte 100 ns	30.00
2 Megabyte 80 ns	57.00
4 Megabyte 80 ns	103.00
8 Megabyte 80 ns	299.00
16 Megabyte 80 ns	519.00

Video RAM

4 Bit to 8 Bit Upgrade	24.00
256K Quadra VDRAM	32.00
512K Mac LC VDRAM	59.00

LIFETIME WARRANTY
ON MEMORY
PRODUCTS

ORDER BY 6:30 PM CST
FOR SAME DAY SHIPPING*

OVERNIGHT DELIVERY
from \$8.00

TOLL-FREE
TECHNICAL SUPPORT

*some restrictions apply

800/256-6581

68882 FPU's

16 Mhz for Macintosh LC	\$ 65.00
33 Mhz for Macintosh LC	149.00
50 Mhz for Macintosh LC	199.00
20 Mhz plus 2 slots for Macintosh IIsi	119.00
20 Mhz for Macintosh Classic II	65.00
33 Mhz for Macintosh Classic II	149.00
50 Mhz for Macintosh Classic II	199.00

Cache Cards, Etc.

II si 64K Cache Card	\$ 139.00
II ci 64K Cache Card	129.00
II si 2-slot Card and 68882	119.00

PowerBook Memory

2 Megabyte Module	\$ 99.00
4 Megabyte Module	179.00
6 Megabyte Module	269.00

FPU's (chip only)

68882 16 Mhz	\$ 59.00
68882 20 Mhz	65.00
68882 25 Mhz	109.00
68882 33 Mhz	135.00
68882 50 Mhz	175.00
68881 16 Mhz	45.00
68881 20 Mhz	49.00

Miscellaneous

T.I. MicroLaser 1 MB	\$ 49.00
MMU for Mac LC	
(to run Virtual)	\$ 139.00
Mac Classic 1 MB Bd	55.00
Mac Classic 3 MB Bd	119.00
SyQuest Cartridges	65.00
512Ke to Plus Upgrade	255.00
68851 16 Mhz PMMU	79.00
Mac Portable RAM	CALL
NeXT Memory	CALL

68030 25Mhz Accelerators

- "Quik30" for Mac SE, Plus, 512Ke
 - Runs at the speed of a Mac IICI
 - System 7-Virtual compatible
 - Add up to 16 Megabytes of RAM
 - Includes 68882 Math CoProcessor
- only \$529.00

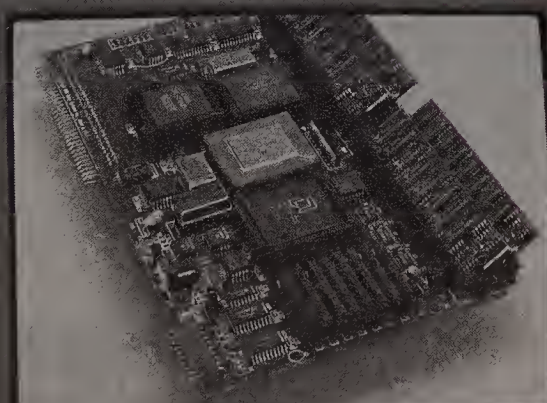
PERIPHERAL OUTLET

327 East 14th, PO Box 2329
Ada, Oklahoma 74820
International ☎ 405/332-6581
FAX ☎ 405/436-2245



ImagePro 25 Mhz accelerator
and 19 inch monitor for SE

\$995



68030 Accelerator and Monitor Combo

- "ImagePro" for SE, Classic, Plus, 512Ke
- Runs at the speed of a Mac IICI
- System 7/Virtual compatible
- Add up to 16 Megabytes of RAM
- Includes 68882 Math CoProcessor
- Optional Display- 15, 19, or 24 inch.



Unbelievably Fast!

CIRCLE 454 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Memory Upgrade

PB Ram™ Memory For All Powerbooks


 

\$295 • 2/4/6 MByte
per • Pseudo-Static
6 MByte • Only 2" x 2"

16 MB SIMM's \$529 (for Mac IICI, IISI, IIfx, Quadras)

- 16 or 32 MB SIMM kit (4 or 8-MB/80 NS for the Mac IICI cx, ci, fx, Quad's \$429/\$858
- 8 MB kit for the Mac LC \$215
- 2 MB SIMM's for the Mac IICI si, IICI, LC \$65
- 4 MB SIMM's kit for any Macintosh \$135

PortaRam™

for the Mac Portable  **\$165*** per Mega-byte (1 to 8)

*Call if you find a lower upgradeable price - we'll beat it!

- One to Eight Megabyte • User Upgradeable!
- Built-in Surge Protector • Gold Plated Boards
- Uses RAM Slot - Not PDS • Very Thin 5/8" Max

Shadow Technologies

1767 Morning Glory Road

VISA Livermore, CA 94550
M/C (510) 548-0130

CIRCLE 462 ON READER SERVICE CARD

Dynamic Engineering

435 Park Dr., Ben Lomond, Ca. 95005
(P)408-336-8891 (F)408-336-3840

PowerBook

RAM, Modem, Hard Disk, Monitor, SW

PB140 Coprocessor \$300

PB RAM 6Mb - \$249 Save w/ trade in

UPGRADE to 8,80/120 - \$699/832

PAL SIMM 2/4 - \$56/119

SIMM 1/4 - \$28/99

MacPortable RAM LOWEST

Mac and PC service

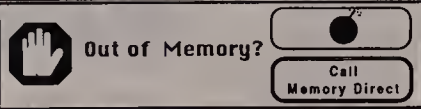
M/C Visa COD P.O.

(800) 487-4655

CIRCLE 555 ON READER SERVICE CARD

MEMORY DIRECT™

"Don't pay Retail... buy direct"



1 Meg Simms —\$28.

Now Memory Upgrades for the New Performa!

44 meg Syquest w/ctrge \$414.
88 meg Syquest w/ctrge \$559.

See our 1 page ad in this section!

800-486-2447

CIRCLE 524 ON READER SERVICE CARD

Peripherals

Hewlett Packard

3.5", 5 Year Warranty, SCSI-2

		Int.	Ext.
234 Mb	12.6 ms	\$ 735	\$ 805
328 Mb	12.6 ms	1065	1135
422 Mb	12.6 ms	1089	1159
1.2 Gb	10.5 ms	2025	2095
5.25", 5 Year Warranty, SCSI-2			
1.2 Gb	12.6 ms	1825	1935
1.6 Gb	13.5 ms	2275	2385
2.11 Gb	11.5 ms	3125	3235
2.35 Gb	11.5 ms	3269	3379

Fujitsu

185 Mb	16 ms	438	508
520 Mb	9 ms, 3.5"	1095	1165
5.25", 5 Year Warranty, SCSI			
1.2 Gb	11 ms	1679	1789
2.06 Gb	11 ms	2589	2695

MICROPOLIS

5.25", 5 Year Warranty, Fast SCSI-2

765 Mb	15 ms	1299	1389
1.2 Gb	14.5 ms	1799	1909
1.5 Gb	14 ms	1925	2035
2.0 Gb	14 ms	2550	2660
2.4 Gb	11.5 ms	3369	3479

ProDirect

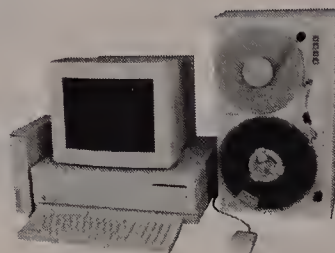
800-524-9952

Fax: 612-935-8352
Ph: 612-935-8201

Corp. • Educ. • Gov't. P.O.'s Welcomed
Dealer Inquiries Welcomed

CIRCLE 480 ON READER SERVICE CARD

9-Track Tape Subsystem For the Macintosh™



Exchange data files between your Macintosh and any mainframe or mini-computer using IBM compatible 1600 or 6250 BPI 9-track tape.

Unit can also be used for disk backup. Transfer rate is up to 16 megabytes per minute via your SCSI interface. Subsystem includes, tape drive, software, and complete documentation. For more information, call us today!

QUALSTAR®

9621 Irondale Avenue

Chatsworth, CA 91311

FAX: (818) 882-4081

Telephone: (818) 882-5822

Macintosh is a trademark of Apple Computer, Inc.

CIRCLE 436 ON READER SERVICE CARD

For your ad to appear, call
800.888.8622

MACWORLD
MWShopper

Peripherals

COMPUTER REVELATIONS INC.

1461 LAKELAND AVE.
SUITE #5-BOHEMIA NY 11716
FAX-516 244-8594

NEC 3FGX

\$659.00

MAGNAVOX 14"

\$429.00

800-275-9924

SONY 1304 14" RADIUS PRECISION

\$629.00

COLOR 19" 2099.00

SIGMA-DESIGN

POWER PORTRAIT \$799.00

CIRCLE 460 ON READER SERVICE CARD

us radius radius radiu

MONITORS

PrecisionColor/20S \$2599

ColorDisplay/21" \$1939

Color Pivot LE & Card \$789

COLOR CARDS

Precision 8X/24X \$719/\$1479

Color Pivot Interfaces \$479

(Compatible with all Mac II's, LC, SE30)

PowerView \$479

ACCELERATORS

Rocket 25i/25/33 \$1190/\$1595/\$1980

NEW PRODUCTS

24XP \$479

VideoVision \$1919

SPECIALS

24X & PrecisionColor/20S Bundle . \$3699

24X & ColorDisplay/21" Bundle \$3299

Pivot/Color Pivot \$669/\$1179

MACS, INC.

Interested in products not listed?

CALL US FOR THE BEST PRICES

AVAILABLE ANYWHERE!

VISA

SAME DAY SHIPPING

(505) 345-7112

CIRCLE 416 ON READER SERVICE CARD

The MW Shopper
gives you results!
Call 800.888.8622 to
place your ad today!

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Peripherals

SyQuest

FUJITSU

Maxtor

hp HEWLETT
PACKARD

Seagate

Quantum

Hard Disk and Tape Drive

Video Boards and Monitors

	Internal	External		Internal	External
Fujitsu 3-1/2" Half Height					
425 Meg - 2623SA, 9 ms...	999	1049	Maxtor 3-1/2" low Profile/low Power		
520 Meg - 2624SA, 9ms...	1199	1149	90 Meg - LXT100S, 20ms...	279	339
5-1/4" Full Height			120 Meg - 7120s, 17ms...	369	419
850 Meg - 2263SA, 16ms...	1199	1249	5-1/4" Full Height		
960 Meg - 2266SA, 11.5ms...	1799	1859	645 Meg - XT8760, 16.5ms...	1249	1339
1.7 Gig - 2652SA, 11.5ms	2899	2949	1.0 Gig - Panther, 13ms...	1699	1789
			1.5 Gig - Panther, 13ms...	2199	2259
Seagate 3-1/2" Half Height					
120 Meg - ST1133N, 15ms...	\$319	\$369	MXT-7213S	495	535
240 Meg - ST3283N, 12ms...	569	639	MXT-LXT340sm	725	789
510 Meg - ST1581N, 14ms...	1159	1199	MXT-LXT535sm	1199	1249
5-1/4" Full Height - WREN					
300 Meg - ST4350N, 18.5ms...	999	1049	MXT-PO-12sm	1599	1649
800 Meg - ST4702N, 16.5ms...	1299	1349	MXT-PI-17sm	1799	1859
1.0 Gig - ST41200N, 15ms...	1699	1799			
1.4 Gig - ST41650N, 15ms...	2199	2259	Quantum 3-1/2" LPS		
1.9 Gig - ST42100N, 12.9ms...	2899	2959	50 Meg - LPS 52.9ms...	\$209	\$269
5-1/4" Full Height - WREN Runner					
330 Meg - RUNNER, 10.7ms...	1199	1299	105 Meg - LPS 105.9ms...	329	409
880 Meg - RUNNER, 11.9ms...	1459	1559	120 Meg - LPS 120, 10ms...	399	459
5-1/4" FULL Height - ELITE Ultra-High performance					
1.4 Gig - ELITE-I, 11.5ms...	2699	2799	240 Meg - LPS 240, 10ms...	599	699
2.1 Gig - ELITE-II, 11ms...	3559	3659	2-1/2" - "Go-Drive" Series- for PowerBook only		
3.5 Gig - ELITE-III, 11ms...	5999	6099	80 Meg - Go-Drive 80, 16ms...	399	469
			3-1/2" Pro Series		
			425 Meg - Pro 425, 8ms...	999	1099

DAT, ExaByte & Teac Tape Drives

160 Meg. Tape Vista - TEAC	\$529	2.0 Gig. DAT Sierra - Archive	\$1299
250 Meg. Tape Vista - Archive	565	2.2 Gig. Tape Vista - ExaByte...	1899
800 Meg. Tape Vista - TEAC	735	5.0 Gig. Tape Vista - ExaByte...	3199
2.0 Gig. DAT Sierra - R-Byte	1209	2.0 Gig. DAT Vista Hewlett Packard...	1299
		8.0 Gig. DAT Vista Hewlett Packard...	1749

ALL Packages include Monitor, Video Board & Cable

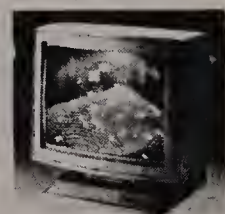
14" Color - 256 Colors - Princeton....	\$529
20" Color - 256 Colors	\$949
20" Ikegami C/N 20-256 Colors.....	\$1425
20" Trinitron - 256 Colors.....	\$1890
20" Trinitron - 16-Million Colors...	\$2890

20" Colors

Includes 20" Monitor, 8-Bit Video Board & Cable Complete

\$979.00

Monitor Only \$899



17" Edison VGA Monitor

\$795

RasterOps

PaintBoard 24	\$1499	PaintBoard LI	\$829
24XLi	1900	24Sx	\$569
24STV	749	24Mx/MxQ ..	\$1149
8XLI	920	8XL	\$459
8LC	519	264/SE30 ..	\$649
ClearVue/GSLC	519	ClearVue/GS30	\$599
ClearVue/XL ..	300	ClearVue/GSXL	\$439
ClearVue/LC ..	299	TV Tuner ..	\$349
Expresso Slide Scanner	\$ 650		
Video Time Multi Media	1119		
Media Time Multi Media	1529		
ColorBoard 706+/SE30	560		
ColorBoard 264/SE30	640		
ImagePak Still Compression	299		
Video Expander II - NTSC	459		
Video Board Accelerators (800 & 801) ..	369		

Clear Vue/Classic	\$219
Clear Vue/SE	309

Radius Color Pivot	\$1259
Radius 15" Mono Full Page	579
Panasonic 14" Color	359
Super MAC & Sony	CALL
NEC MULTISYNC MONITORS	
3FGX (15")	819
4FG (15")	739
5FG (17")	1319
6FG (21")	2699

20" Trinitron

Includes 20" Trinitron, 8-Bit Video Board, & Cable

\$1899

Monitor only \$1699

Memory Upgrade

SPECIAL

MODEL NO.	MB	PRICE
MAC II, IIX WITH PAL	1MB	\$33
MAC II, IIX WITH PAL	4MB	119
MAC II, IIX	8MB	239
MAC II, IIX	16MB	460
MAC II FX	1MB	34
MAC II FX	4MB	99
MAC II FX	8MB	220
MAC II FX	16MB	440
MAC II si	2MB	55
MAC II si (8MB KIT)	8MB	230
POWERBOOK 100, 140, 170	2MB	90
POWERBOOK 140, 170	4MB	160
POWERBOOK 140, 170	6MB	230

MODEL	MB	PRICE
MAC QUADRA 700, SE30(32MB KIT)	32MB	\$ 890
MAC QUADRA 700, SE30(64MB KIT)	64MB	1890
MAC IIci, Ilicx QUADRA 900 (32MB KIT)	32MB	920
MAC IIci, Ilicx QUADRA 900 (64MB KIT)	64MB	1780
MAC QUADRA 700, 900 V-RAM	256K	32
MAC CLASSIC	1MB	59
MAC CLASSIC	3MB	129
MAC QUADRA 950 V-RAM	256K	35
MAC LC-VRAM	512K	55
LASER II NTX	4MB	109
POWERBOOK 100	4MB	170
POWERBOOK 100	6MB	220
FPU CLASSIC II-16	16MZ	65
FPU CLASSIC II-20	20MB	69

SPECIAL BLOW OUT SALE

1MEG X 8-80ns -	\$ 29
1MEG X 8-70ns -	\$ 30
4MEG X 8-80ns -	\$105
4MEG X 8-70ns -	\$109
2MEG X 8-80ns -	\$ 60
2MEG X 8-70ns -	\$ 66
8MEG X 8-80ns -	\$290
8MEG X 8-70ns -	\$299
16MEG X 8-80ns -	\$490
16MEG X 8-70ns -	\$499

NOTEBOOK MEMORY

2MEG CARD	\$199
4MEG CARD	\$309
6MEG CARD	\$420

CD ROMs

Toshiba CD ROM With K1	\$649
NEC CD ROM NEC 36	\$445
NEC CD ROM NEC 73	\$899

MODEMS

QUICKTEL XEBA Send/Rec Fax/Modem	\$169
PSI Power Modem	\$199
LEXUS Turbo Modem	\$ 89
GLOBAL VILLAGE Power Port Full Fax	\$459
GLOBAL VILLAGE TELEPORT Full Fax	\$199
GLOBAL VILLAGE TELEPORT Modem	\$119

FEATURING



REMOVABLE TECHNOLOGY

SQ555	44mb	Actual MAC Capacity: 42mb	\$395
SQ5110	88mb	Actual MAC Capacity: 84mb	\$530
	Dual 44mb		\$730
	Dual 88mb		\$950
	Dual 44mb & 88mb*		\$920
	44mb Cartridge		\$ 62
	88mb Cartridge		\$ 96

SyQuest Drives feature: Industry standard half-height 5.25" form factor * 20ms average seek time * Fully embedded SCSI controller * MTBF of 60,000 hours

* SyQuest drives include a TWO YEAR Warranty, one cartridge & necessary cables, SCSI Director v.2.4 Formatting Utility.

Tape Backup System

Capacity	Model	Description	Media	Access Time	External
155mb	Teac MT2ST/N50	Analog	CT600N	5-7 MB/sec	\$460
600mb	Teac MT2ST/F50	Analog	CT600F	7-10MB/sec	670
2.0GIG	WangDAT 1300XL	DAT, DDS	4mm	10-15MB/sec	1299
3-5GIG	WangDAT 3200	DAT, DDS-DC	4mm	10-15MB/sec	1499
2.0GIG	HP 35470A	DAT, DDS	4mm	10-15MB/sec	1349
3.5GIG	HP 35480A	DAT, DDS-DC	4mm	10-15MB/sec	1799
2.2GIG	Exabyte EXB-8200	Digital/Helical	8mm	10-15 MB/sec	1909
5.0GIG	Exabyte EXB-8500	Digital/helical	8mm	10-15MB/sec	3169

Includes retroSpect v.1.3c Backup Software & One Tape and ONE Year Warranty

We Will MEET or BEAT Any Advertised Price

The Mac Merchant

22755 Savi Ranch Parkway, Unit G Yorba Linda, CA 92687 Tel: 714-637-4800 Fax: 714-637-6293
800-366-4433 West Coast 800-872-6677 East Coast

CIRCLE 443 ON READER SERVICE CARD



For your ad to appear in The Macworld Shopper, please call 800.888.8622

Peripherals



Video Boards, Monitors and Packages

All Packages Include Monitor, Video Board & Cable!

14" Color - 256 Colors - Delta CM1401	499
20" Grayscale - 256 Grayscale - Sampo	799
20" Color - 256 Colors	999
20" Trinitron - 256 Colors	1,999
20" Trinitron - 16-Million Colors	2,799

We feature RasterOps Products **RASTEROPS**

PaintBoard 24 ..	1,559	PaintBoard Li	849
24XLi	1,949	24Sx	629
24STV	789	24Mx/MxQ	1,199
8XLi	949	8XL	479
8LC	559	264/SE30	699
ClearVue/GSLC ...	549	ClearVue/GS30 ..	629
ClearVue/XL	319	ClearVue/Classic	229
ClearVue/SE	329	ClearVue/GSXL ..	479
ClearVue/LC	329	TV Tuner	399
Espresso Slide Scanner	699		
Video Time Multi Media	1,149		
MediaTime Multi Media	1,599		
ColorBoard 708+/SE30	599		
ColorBoard 264/SE30	699		
ImagePak Still Compression	319		
Video Expander II - NTSC	459		
STV Accelerator Expansion Board	195		
Accelerators (800 & 801)	399		
"Sweet 16" Package	2,049		

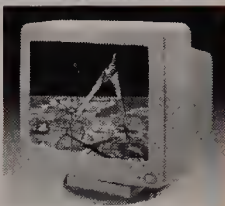
20" Trinitron

Includes 20" Trinitron, 8-Bit Video Board, & Cable Complete!

\$1,999

Monitor Only \$1,799

Fantastic value! The monitor is a 20" micro-processor controlled Trinitron which self-adjusts to almost any video input. Our 256-color nabus video board and shielded cable is included - all at one low price!



14" Color Monitor \$299

14" Color Package \$499

20" Sampo Grayscale

Includes 20" Monitor, 8-Bit Video Board, & Cable Complete!

\$799

Monitor Only \$599

Special Value! An affordable high quality, 20 inch grayscale monitor package - complete - for less than \$800! The Sampo 20" OfficePro Ila grayscale is featured by many "major brands" for hundreds more! Why pay extra? If you are not satisfied we will give you your money back!



SyQuest Drives

Complete System - includes cables, carrier, and software.

Mobile 44 Vista - includes cartridge	429
44 Megabyte Data Cartridge	68
Mobile 88 Vista - includes cartridge	559
88 Megabyte Data Cartridge	109

2-Year Warranty



All drives are pretested and are warranted for 24-months. The Relax Mobile is a complete package - all cables and software are included - at no additional charge!

\$429

SyQuest 44

\$559

SyQuest 88

Call for our new FREE Catalog!
Over 500 items!

Service -

All products are 100% tested - if you need help we are just a phone call away. We have over 10 years of customer service experience!

Price -

Our size allows us to purchase at the lowest possible cost, and we manufacture in our own factory. Then we pass the saving on to you.

Performance -

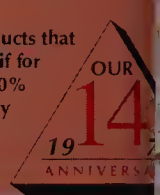
Serious business and professional users demand performance - our Trinitron monitors and Hewlett Packard 3-1/2" hard drives.

Selection -

We offer more than 500 different products for IBM, Macintosh and SUN. From SIMMS to 2 Trinitron video packages we offer more of what you need. Call for our new catalog.

Quality -

We only offer quality products that you can depend on. And if for any reason you are not 100% satisfied we offer a 30-day money back guarantee - We Guarantee Your Complete Satisfaction!



Rewritable Optical Drives



as low as...

\$1,499

600 Meg. ISO Optical

RICOH

- Industry Standard - ISO Certified
- Macintosh - IBM - SUN Compatible
- Low Cost - High Performance

Large, fast and affordable. We offer a variety of solutions for your large capacity data storage needs. 110/220 VAC.

600 Meg. Ricoh ISO 5030E-I 1,499
While Supplies Last - Limited Quantity!

Lowest cost per megabyte - 67 ms. average access.

600 Meg. Optimum ISO Model 750 1,799
Premium Quality at Low Cost - 60 ms. average access.

600 Meg. Ricoh ISO 5030E-II 2,199
Lowest cost per megabyte - 67 ms. average access.

600 Meg. Ricoh ISO 5031E New! 2,799
High performance - 35 ms. average access.



128 Meg. Optical

Macintosh & IBM compatible **\$1,299**

Each 3-1/2" erasable optical cartridge holds over 120 megabytes of data! The Sierra MO (shown) is an ideal primary or backup storage device for IBM or Macintosh personal computers. Featuring the RICOH 3010E drive, the Sierra MO is IBM and SONY compatible - and it is faster! Complete package - includes SCSI cable, Mac software, and external power supply. Specify 110 or 220 VAC.

Includes media, software & cables!

128 Meg. ISO 3010E	1,299
128 Meg. Cartridge	49

Miscellaneous

Modems:

SupraFAX Modem Plus 2,400	199
SupraFAX Modem v.32 9,600	279
SupraFAX Modem v.32bis 14,400	379

SIMMS, Video RAM, Accelerators:

1 Meg. - 1Mx8-100/Mac	29
1 Meg. - 1Mx8-80/Mac	32
2 Meg. - 2Mx8-80/Mac	64
4 Meg. - 4Mx8-80/Mac	119
8 Meg. - 8Mx8-80/Mac	349
16 Meg. - 16Mx8-80/Mac High Profile ..	519
Quadra - 256K Video SIMM	29
Classic - 3 Meg. Exp. Card w/1 Meg.	49
Classic Accelerator w/Co-Processor	289
Powerbook 100 - 4 Meg. Card	239
Powerbook 100 - 6 Meg. Card	349

Powerbook 140/170 - 4 Meg. Card	199
Powerbook 140/170 - 6 Meg. Card	299
PowerBook 12-Hour Battery Pack	79

Newer Technology:

"fx/Overdrive" Accelerator	599
"Quadra 900/Overdrive" Accelerator	299

Asanté:

Asanté MacCon3 - All Models	219
Asanté MacCon+ - All Models	169
Asanté FriendlyNet Adapters - All Models ..	89
Asanté SCSI to Ethernet - All Models	349
Asanté 10BaseT Hub/8	249
Asanté 10BaseT Hub/12	499

Co-Star:

AddressWriter	495
LabelWriter II Mac	199
LabelWriter II Plus Mac	299

Fujitsu 3-1/2" Half Height

425 Meg. - 2623SA, 9 ms.	999	1,059
520 Meg. - 2624SA, 9 ms.	1,239	1,299
5-1/4" Full Height		
650 Meg. - 2623SA, 16 ms.	1,339	1,399
960 Meg. - 2266SA, 11.5 ms	1,839	1,899
1.7 Gig. - 2652SA, 11.5 ms	3,039	3,099

DAT, Exabyte & Teac Tape Drives

160 Meg. Tape Vista - TEAC	569
250 Meg. Tape Vista - Archive	599
600 Meg. Tape Vista - TEAC	779
2.0 Gig. DAT Sierra - R-Byte	1,299

Hard Disk and Tape Drives

Internal External

Seagate 3-1/2" Half Height

120 Meg. - ST1133N, 15 ms.	339	399
240 Meg. - ST3283N, 12 ms.	599	659
510 Meg. - ST1581N, 14 ms.	1,239	1,299
5-1/4" Full Height - WREN		
300 Meg. - ST4350N, 16.5 ms.	1,039	1,099
600 Meg. - ST4702N, 16.5 ms.	1,339	1,399
1.0 Gig. - ST41200N, 15 ms.	1,799	1,859
1.4 Gig. - ST41650N, 15 ms.	2,199	2,259
1.9 Gig. - ST42100N, 12.9 ms. ..	3,039	3,099
5-1/4" Full Height - WREN Runner		
330 Meg. - RUNNER, 10.7 ms.	1,299	1,359
660 Meg. - RUNNER, 11.9 ms.	1,599	1,659
5-1/4" Full Height - ELITE Ultra-High Performance		
1.4 Gig. - ELITE-I, 11.5 ms.	2,639	2,699
2.1 Gig. - ELITE-II, 11 ms.	3,439	3,499
3.5 Gig. - ELITE-III, 11 ms.	4,439	4,499

Quantum 3-1/2" LPS

50 Meg. - LPS 52, 9 ms.	229
105 Meg. - LPS 105, 9 ms.	359
120 Meg. - LPS 120, 10 ms.	429
240 Meg. - LPS 240, 10 ms.	669
2-1/2" - "Go*Drive" Series - for PowerBook on	
80 Meg. - Go*Drive 80, 16 ms. ..	439
3-1/2" Pro Series	
425 Meg. - Pro 425, 8 ms.	999

Maxtor 3-1/2" Low Profile/Low Power

90 Meg. - LXT100S, 20 ms.	299
120 Meg. - 7120S, 17 ms.	399
5-1/4" Full Height	
645 Meg. - XT8760, 16.5 ms.	1,399
1.0 Gig. - Panther, 13 ms.	1,839
1.5 Gig. - Panther, 13 ms.	2,399

Hewlett Packard 3-1/2" Half Height

310 Meg. - HP2234, 12.6 ms.	1,099
400 Meg. - HP2235, 12.6 ms.	1,199
1.0 Gig. - HP2247, 12.6 ms.	2,239
5-1/4" Full Height	
1.0 Gig. - HP97558, 13.5 ms.	1,979
1.3 Gig. - HP97560, 13.5 ms.	2,399

CD-ROM Drives

New! We have recently purchased a brand new Portable CD-ROM from a major manufacturer. They don't want us to name them because the price we are offering is so low! Call for details about this bargain performer.

CD-ROM - Mesa Portable 299

Featuring the Toshiba XM3301B. Vista CD-ROM provides state-of-the-art performance including a sealed contamination free environment and an automatic lens cleaning mechanism which dramatically improves reliability. Performance is a fast 325 milliseconds average access. Full audio control via software is provided by the Music Box software (included). Includes sample CD-ROMs.

CD-ROM - Vista - XM3301B 549

510-471-6111



3101 Whipple Road
Union City, CA 94606
FAX: 510-471-6200
TEL: 510-471-6111

We will **BEAT** any competitor's price on a comparable product - call for details



Call or FAX for FAST SERVICE! No surcharge for credit cards, terms available for approved accounts. Orders accepted. We ship via Federal Express.

© 1992 RELAX, Sierra, Mopile, Mesa, and Vista are trademarks of Relax Technology, Inc. All Trademarks and Registered Trademarks are the property of their respective holders. Prices subject to change without notice. Product subject to change without notice.

CIRCLE 422 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Printers

Save BIG in printing costs!

Recycle your Jet & Dot Matrix Printer Cartridges

Jet-Master™

All Jet-Printers supported, single & multicolor with individual, re-usable Jet-Master kits. Each kit includes 1 ink bottle (4 for color kits). Then just buy ink as needed. Avg. ink cost per re-charge is 1-2 dollars.

Apple Stylewriter (BJ1) ...29.95
HP Deskjet (JM2).....24.95
HP Paintjet (JM1, 4 color) .49.95
HP Think-Jet (JM3)26.95

Other brilliant colors available. Call for detailed brochure. Resellers welcome.

Computer Friends, Inc. 14250 NW Science Park Drive, Portland OR 97229
Toll Free 1-800-547-3303 - fax (503) 643-5379

CIRCLE 563 ON READER SERVICE CARD

MacInker™

Re-ink your Imagewriter cartridges for less than 5¢ and help extend printhead life with dark, cooling, lubricated ink. Over 200,000 sold since 1982. Re-ink multicolor cartridges too!

234im MacInker Imgewr. I/IL...48.00
M422 4-color Adapter40.00

Universal MacInker79.45
The Universal MacInker re-inks most cartridge types. Call for complete info.

Satisfaction or 30-day refund on all products. Major credit cards accepted.



Astrology

McFORECAST

Be Your Own Astrologer For Fun Or Profit

Produce amazing astrological predictions!

McForecast, your astrological window on the future. Each prediction a fully descriptive paragraph. Professional astrologers charge \$50.00 and more for these valuable reports. You can create amazing forecasts and beautiful natal charts.

\$199.50

* TIME CYCLES RESEARCH *

"ASTROLOGY FOR THE MACINTOSH"

• Write Or Call For Free Brochure •

Time Cycles Research 27 Dimmock Road, Waterford, CT 06385
(203) 444-6641

MC•Visa•Amex



CIRCLE 411 ON READER SERVICE CARD

Bar Code

BAR CODES

- Labeling Software — Bar Codes, Images, Text — Flexible Design
- Complete — Nothing Else to Buy
- Code 39, UPC/EAN and PostNet
- Not HyperCard Dependant
- Simple, Easy-to-Use, Plug & Play

WORTHINGTON
DATA SOLUTIONS



* WORTHINGTON DATA *

- 42 PostScript Type 1 Fonts.
- Generate film masters from PageMaker, Illustrator, Quark, WriteNow, etc.
- \$199 includes Labeling Program and Fonts
- 30 day money back guarantee

800-345-4220 OR 408-458-9938

CRA Systems

600 x 600 dpi
LIQUIDATION

PostScript
\$2495

- 7 megs of Ram
- Canon 8ppm Laser Printer Engine
- Advanced AMD 29000 RISC Processor
- Up to "10" times faster than the IINT
- ISI (simultaneous PC or MAC Printing)
- Appletalk, RS232, SCSI Interface
- Dual Page Processing

1-800-375-9000 1-817-754-2120
See our other ad under Computer Systems

CIRCLE 432 ON READER SERVICE CARD

Software

Accounting

Business
Sense 1.6

Now Publishing
Dollars and Sense

Now you don't need to be an Accountant to do your own accounting on your Mac! Business Sense Takes Integrated Accounting into the next century. Includes AP, AR, GL, PAYROLL, Budgets, Imports and Exports. - List price \$199 - For a FREE test drive call: 800-377-4954

FAX 800-377-5453

Business Sense, Inc. 6360 Moki Cr
West Jordan UT 84084

CIRCLE 567 ON READER SERVICE CARD

Grow with
the market
in
the
MW Shopper

Macworld

#1 in bringing buyers and sellers together!

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Business

use your macintosh® to **BUILD A PROFITABLE HOME BUSINESS** with *SunBear Technologies, Inc. Entrepreneur's Kit*

- * Over ten new business ideas every 90 days
- * Fast & low cost start-ups
- * Easy-to-use templates for spreadsheet, WP & database applications
- * Guide to invoicing, billing, marketing, inventory & financial stmts
- * TIPS; on credit, incorporating, taxes, and more!

\$47.25 for a 1
year membership

MONEY BACK GUARANTEE!

☆☆ **AMERICAN**
☆☆☆ **ENTREPRISE**
"BEST IDEAS & BEST
TEMPLATE DESIGN"

For our
FREE brochure (800)775-BEAR or
call or Fax today! Fax (215) 698-7445
3625 Davisville Road. Hatboro, PA USA 19040

CIRCLE 447 ON READER SERVICE CARD

CAD/CAM

CircuitMaker 3.0

New version - over 20 new features!

Integrated Schematic Capture and Digital Simulation

- Quickly draw any electronic schematic
- Run an interactive simulation of the digital portion of the circuit with on-screen display of circuit behavior and logic analyzer timing display
- Effortlessly edit using features such as smart wires, rubberband move of devices and wires, stylized text and full cut, copy and paste
- Define your own symbols and functional devices
- Export schematics and waveforms for use in your word processor or page layout program

CircuitMaker 3.0 - \$200 Demo disk - \$10

MicroCode Engineering
1943 North 205 West
Orem, Utah 84057
Tel(801)226-4470
FAX (801)226-6532

CIRCLE 408 ON READER SERVICE CARD

CD ROM

SUPER HI-RES PHOTOS ON CD-ROM

20 top quality images created by industry
professionals from start to finish!

- Scanned 8x10" full color images
- 175 line screen - can be resampled to lower LPI
- Copyright restrictions removed.
- Manipulate, crop or resize: Unlimited possibilities

Each monthly edition is composed of an array of
categories and is limited to 1000 CDs.
After 1000 we destroy the master!

Don't miss out: Start your digital photo library today!!

\$150 + S&H

that's \$7.50 per image for unlimited usage

(503) 228-8105
FAX (503) 223-5386

**DIGITAL
GALLERY
LIMITED**

CIRCLE 429 ON READER SERVICE CARD

Clip Art

CLASSIC SERIES CLIP-ART
Original Images from the 'Turn of the Century'

Borders, Corners, Bullets, Flourishes. Everything you need to accent your Documents.
Vol. 1, 2 or 3 \$49.00 each All Three Vol. \$125.00 1-800-829-8918

CIRCLE 440 ON READER SERVICE CARD

Tired of frumpy clip art?
Finally, powerful refreshing images
from a museum collected artist!
100% Hand Drawn!

People Vol. 1
1-800-23-HAIRY
tech. support
1-602-835-5704
P.O. Box 5504, Mesa, AZ 85211

Hairy Head Software
William Barnard
\$59.95 + ship & ho

CIRCLE 442 ON READER SERVICE CARD

NEW! (in color!)
Marble & Granite
40 hi-res TIFF images, 120 PICT
images, 160 seamless tiles and
floor tiles. Double CD-ROM-\$349
800-444-9392 or 503-863-4429
ARTBEATS, Box 1287, Myrtle Creek, OR 97457

Professional CAD Symbol Library

Over 3,000 CAD Symbols in One All-Inclusive Package



Architectural (Residential & Commercial), Interior
Design & Site Planning, The "Plumbing & Heating
Supply House", The "Hardware Store", The "Electronics
Shack", Welding, General Drawing Aids, Cartographic,
180+ Page User's Manual, And Much More, All for
\$149.95!

Advanced System Design, Inc.
1010 Stagecoach Blvd., P.O. Box 3131
Evergreen, Colorado 80439
(303) 674-2222 to Order

Compatible with
Clariscad™,
MacDraw II™,
PowerDraw™ and
Canvas™

CIRCLE 409 ON READER SERVICE CARD

Info-Mac CD-ROM™

World Premiere Edition!

Thousands of the hottest
freeware and shareware
programs for the Mac -
taken from the Granddaddy
of Internet Macintosh archives:
sumex-aim.stanford.edu.

Internet digests for the Mac
are included too. \$39.95 + 5 s/h
Pacific HiTech, Inc.
4760 Highland Dr., Ste. 204
Salt Lake City, UT 84117-5009
801/278-2042
801/278-2666 Fax

An Introductory Offer From NETWORK WORLD

Because In Your Job, A Picture Is Worth Much More than 1,000 Words.

- The first clip-art library created for net-
working and computer professionals
- Over 170 professionally drawn symbols for
Computing, WANs, LANs, Telephony, Per-
sonal Computing and Patching and Cabling
- Works with many drawing programs for
the MAC including MacDraw®, Canvas® and
SuperPaint®
- PICT symbols can be pasted into a variety
of word processing, page layout and
presentation documents
- Also available for DOS and Windows
- Offered at the low, introductory price
of \$99.95

NetDraw Clip Art for Building Networks™

**Call 800.643.4668 To
Order Today!**

CIRCLE 449 ON READER SERVICE CARD

The MW Shopper
Your way to save

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Clip Art



Screen Caffeine

500 MB OF COLOR IMAGES, ANIMATION, AND ALPHA CHANNELS!

CD ROM \$99

NEOVIE ☎ 800/880-8888
☎ FAX 512/346-8911 * Austin Texas

NEW Introducing a New Concept in Font Format 520 Original Images

Vol. 1 Ornaments ♦ Vol. 2 Corners
Vol. 3 Art Deco ♦ Vol. 4 Images

PolyType™

Use in any program that supports font menus
Scalable to any size your program allows
Open/modify outlines in Freehand or Illustrator

Call for Brochure or Send \$10.00 for Sample Disk
800 998-9934
P.O. Box 25976, Los Angeles, CA 90025 310 444-9934 FAX 310 444-7897

CIRCLE 448 ON READER SERVICE CARD

Communications

TeleFinder™ GROUP EDITION BBS

The leading Macintosh Bulletin Board System in business and education. First in quality and performance. "The most useful BBS we've seen" *MacUser (UK)*.

- Multi-user, E-mail, ZMODEM file transfer, conferences, find file, and graphic user interface.
- Use modem or AppleTalk with NetConnect.
- Supports Mac and PC users.
- Comm Toolbox and System 7 savvy.
- TeleFinder is \$425.95 for unlimited users. Includes host and user communication software. Call for free demo!

Spider Island Software
4790 Irvine Blvd #105-347 Irvine, CA 92720
tel (714)669-9260 fax (714)669-1383
bbs (714)730-5785

CIRCLE 435 ON READER SERVICE CARD

Cooking

Digital Gourmet

A Books-on-Disk® Hypercard based electronic cookbook. Contains over 1,000 traditional & contemporary recipes. Designed to appeal to health conscious eaters; calorie, fat, carbo., sodium, & protein contents are provided for ea. recipe & ingredient. Other features incl. searching for, modifying, printing recipes, & adding an unlt. # of recipes.

TeleTypesetting Co. Books-On-Disk
311 Harvard Street
Brookline, MA 02146
800/800-3333 MacConnection
617/734-9700 Direct
617/734-3974 Fax

Educational

MAPART!

Professional Quality Maps for Graphic Design!
Publications • Presentations • Brochures • Slides • Teaching Aids
World • Continents • Major Countries • 25 Major US Cities
Detailed Coasts, Islands, Lakes, Rivers
Globes • US States with Counties
Available as object EPS or PICT files
Compatible with all popular DTP and Graphic Design software!

"Fine Artwork"
— MACWORLD, Jan 1992.

For FREE catalog with Sample Maps:
800-334-4291

See Our Listing in: MacWAREHOUSE

MICROMAPS SOFTWARE
5 S. Main St., Box 757, Lambertville, NJ 08530
Voice: 609-397-1611 • FAX: 609-397-5724

CIRCLE 417 ON READER SERVICE CARD

THE SANTA FE COLLECTION™

Native American & Southwest
Clip Art for Mac & PC
500 Images & 125 Borders!

EPS Now Available!
Paint version reduced to \$49

Call for Introductory Offer:
(505) 891-1600
1-800-245-7824

RT GRAPHICS
602 San Juan de Rio, Rio Rancho, NM 87124

CIRCLE 458 ON READER SERVICE CARD

Logo Design Software \$119

Create world-class logos like these in minutes. **Logo SuperPower™** is a graphic database of 660+ design elements which you can modify in an infinite number of ways. Available for FreeHand, Illustrator and PC. For information call (513) 421-1938.

Order line - call toll-free
800 648-5646

CIRCLE 533 ON READER SERVICE CARD

LifeART™ Collections
Professional Medical Clip Art

Full Color & B/W Collections!

- Editable in MacDraw & SuperPaint
- FREE file translation utility provides EPS, PICT Vector & PICT Raster in every Collection

Over 2000 Medical and Health images available!

Collections starting at \$89.00 for 150 images

FREE Catalog 800-777-8930

TechPool Studios
Cleveland, Ohio
Phone: 216-291-1922
Fax: 216-382-1915

CIRCLE 415 ON READER SERVICE CARD

Macの日本語はクオリタスにお任せ下さい。
Qualitas is your Japanese Resource!

LaserMaster Unity1000-J

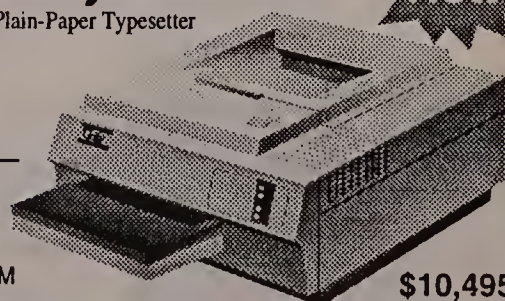
Japanese Postscript-Compatible Plain-Paper Typesetter

1000DPI

高品位日本語

レーザープリンター

Internal 80MB Hard Disk,
4 Japanese & 35 Roman
PostScript Fonts, 16MB of RAM



\$10,495

Software QuarkXPress-J / Aldus PageMaker-J / Aldus Freehand-J / Adobe Illustrator-J / Adobe Type Manager - J / SOLO Writer / EGWord 4.2 / Excel-J

LaserMaster™ Authorized Dealer

*This ad printed by Unity 1000-J.



Qualitas Trading Company
2029 Durant Avenue, Berkeley, CA 94704
Phone: (510) 848-8080 Fax: (510) 848-8009

日本語で
お問合わせ
下さい。

CIRCLE 414 ON READER SERVICE CARD

Continued...

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Educational

BACK-TO-SCHOOL SALE: call 800-669-6574

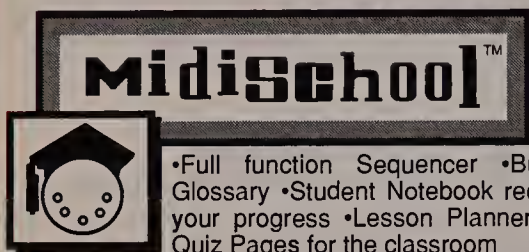
MAKETEST® organizes questions by topic and difficulty and prints tests and answer keys quickly.

MATHMAKER FONTS™ allow you to type fractions, roots, equations, number lines and grids as text.

CLASSMASTER™ makes grading and attendance easy.

298 FOURTH AVE. N° 401, SAN FRANCISCO, CA 94118 • FAX: 415-752-6506 • **FREE DEMOS**

CIRCLE 478 ON READER SERVICE CARD



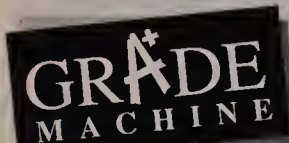
Interactive MIDI Tutor
800-824-4788

\$119

EduACTIVE (603) 668-4788

•Full function Sequencer •Built-in Glossary •Student Notebook records your progress •Lesson Planner and Quiz Pages for the classroom

CIRCLE 465 ON READER SERVICE CARD



GRADING MADE EASY!

The best Mac gradebook just got better.

New Version 5.0 adds student graphs, narrative comments, multiple grading scales, user-defined special scores, password protection and much more. System 7 and network compatible. Copy-protected. **Affordable** site licenses available.

Misty City Software
10921 129th Place NE
Kirkland, WA 98033
(800) 795-0049

Still only **\$79** (\$99 bundled with new Attendance Module)
+ \$5 S&H **MONEY-BACK GUARANTEE!**

CIRCLE 413 ON READER SERVICE CARD

THE ABSOLUTE BEST IN TESTING!

LXR-TEST™ 4.1 is the most advanced and complete testing system available for your Mac!

- Item banking
- Test generation
- Scoring & analysis
- Paper & interactive
- Mark reader support
- Commercial banks
- Character styling w/tabs
- Full graphic placement
- Database selection
- Compatible gradebooks
- Student mastery
- Spelling checker

Highest rated software available in various editions to match your testing needs. Fully guaranteed! Pricing from \$149. For complete brochure & free preview disk; call, write, or fax:

Logic eXtension Resources
9651-C Business Center Drive
Rancho Cucamonga, CA 91730
(714) 980-0046 Fax: (714) 987-8706

CIRCLE 407 ON READER SERVICE CARD

Engineering

\$65 UNIT VISA/MC

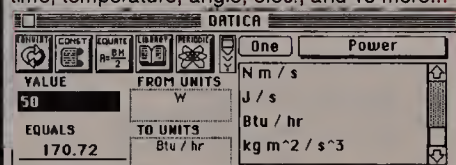
CONVERSION
DATICA™

Handles ANY Conversion

1-800-527-7472 ...by Design, Inc.

CIRCLE 437 ON READER SERVICE CARD

Click and convert length, mass, work, power, time, temperature, angle, elec., and 15 more...



Solves 40 equations, Periodic table, Library files

Fonts

Scalable

FONTS

TYPE 1 OR TRUETYPE

PC versions also available

Pkg. 1 - Alphabet Soup

Aztek JAMAICA

Radical Durham

BANDIT TOPHAT Engrvd

Tophat TwinTubes

SILVER DOLLAR

FATSO Laredo SPORT

METRO Duffy L.E.D.

Pkg. 2 - Fancy Fonts

ARCHER ARCHER

Shadow

Bebop Jaelyn

FRiAR tuck Teens

Eurobold Extended

Van Rose Compute

EMPORIA Key West

MARDI GRAS MATINEE

SKINNY DIP Sanford

Hand crafted, not auto-traced.
Smooth at any size, compatible
with all special effects.

\$69 Each collection of 15 fonts

Save 19 clams, get
all 30 display fonts for only

\$119!

(800) 888-1550

SilverGraphics

307 West Morgan Avenue
Pennington Gap, VA 24277
(703) 546-3800

CIRCLE 402 ON READER SERVICE CARD

Font Reference Guide

The Precision Type Reference Guide

150+ pages of displays, information and pricing for thousands of fonts, font software tools and CD's. **\$6.95**

Prices discounted up to 40% off list. The \$6.95 cost is refunded with your first order.

Precision Type

The Complete
Font Software
Resource

800.248.3668

47 Mail Drive
Commack NY 11725

Use Visa, MasterCard, AMEX or Discover for your Reference Guide order.

CIRCLE 485 ON READER SERVICE CARD

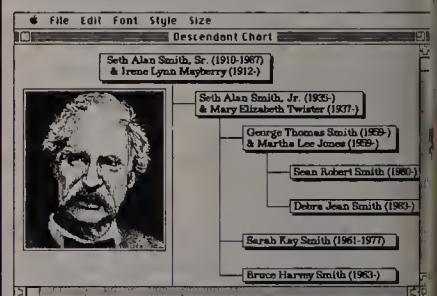
Genealogy

REUNION

the family tree software

MacUser Oct '90

Reunion quickly organizes your family information and images, links and displays color and grayscale pictures, identifies relationships, creates large graphic charts, family group records, family histories, mailing lists, questionnaires, and more.



To order, call MacConnection @ 1-800-334-4444.
For a brochure & sample printouts, contact...

Leister Productions
P.O. Box 289, Mechanicsburg, PA 17055
phone 717-697-1378 — fax 717-697-4373

Family Heritage File™

New Version 3.0! Most powerful and ea

genealogy program on Mac. Rated "BEST" by Macworld. Designed by genealogy professionals. •Enhanced

•Fully Relational •Graphic Pedigree,

Family Group, Individual, Marriage,

Surname •Unlimited History •Sorted Lis

•Export to WP/data base/modem. \$14

+ 5 s/h. Call for special Holiday Bundle.

Also, new Jewish Version. Visa/MC. Den

\$7. Free Lit Pak.

Star•Com Microsystems

Windsor Park East

25 West 1480 North

Orem, UT 84057

801/225-1480

For all your Macintosh needs, look to
the MW Shopper

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

CATALOG

MACWORLD
MWShopper

Genealogy

Family Roots™

Do it YOUR way! Huge variety and capacity for your family history. Make degree charts, descendants charts, person sheets, group sheets, indexes and much more. Customize to your own preferences. Standard Mac interface. Call for FREE information. Satisfaction guaranteed. MC/Visa/AE.

Intercept
Box 216
Wilmington MA 02173
17/641-2930
800/637-ROOT

Macworld
Magazine.

When you get
down to
business, you
can't do
without it.

HyperCard Stacks

What
speaks,
conjugates,
tutors
and tests

foreign languages
on a Macintosh?

MacFlash Cards 2.0
The most advanced Language
Software Program available

Call or write for a FREE brochure
The Language Quest Software Co.
101 First St. Suite 428
Los Altos, California 94022
Czech & Cyrillic fonts at low prices!
800-622-3574/415-941-6383
FAX 415-941-6119

CIRCLE 451 ON READER SERVICE CARD

Languages

MACTRAN PLUS Ver. 4.5

Sys. 7 Compatible INTEGRATED Made-For-Mac Development System. Incl: Editor, Optimizing Compiler, Source level Debugger, Linker, Library Manager, Profiler and Build facility. Supports 68020/030 & 68881/2 native code. Significant Vax Fortran & ANSI 8x ext. Hi & Low level tool box interface. Unltd. code segment size. "I believe you easily have the best FORTRAN compiler for Macintosh," Bill White, Texas A&M University. "You have made a number of major improvements that are significant, and it becomes the best FORTRAN Compiler for the Mac." Byron Palmer, Los Alamos Natl. Lab. DCM Data Products, 610 One Tandy Center Fort Worth, TX 76102
817/870-2202
817/336-2416 Fax

Graphics Translators

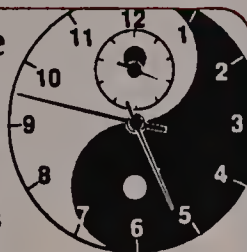
Some Translators Are A Waste
of Your Time

Don't Get Frustrated... Get CADMOVER®
CADMOVER won't lose your graphic's line weights, crush its layers, gloss over its text or complain that your file is too large.

Quality results are available via IGES, DXF, HPGL, EPSF, CGM, Gerber, DDES2 & a variety of Mac based formats.

Easy to use...
accurate...effective.

Call 703.532.0213



KANDU
Software Corporation

CIRCLE 549 ON READER SERVICE CARD

Languages

FORTRAN 77 • System 7

Language Systems FORTRAN is an ANSI/ISO standard FORTRAN 77 compiler with System 7 features. Supports extensions from VAX and Cray FORTRAN, built-in debugging, background execution, MPW integration, and optimized code generation for all Macintoshes. The complete solution to your FORTRAN programming needs.
Language Systems Corp.
441 Carlisle Dr.
Herndon, VA 22070-4802
703/478-0181
703/689-9593 Fax
800/252-6479

Medical

CODE SEARCH™

ICD9 Medical Diagnosis Coding program allows rapid access, cutting and pasting of the most specific ICD9 Codes. Package includes 1993 ICD9 Codes and directory of over 6,000 Insurance companies. UPIN modules are available for any state. Works with most Mac billing systems and is System 6/7 compatible. Call to place your order or call for free demo disk and literature.
Diagnostic Data, Inc.
20 Balfour Drive
West Hartford, CT 06117
800/999-6405

Human Resources

Frazzzzzled by HR Record Keeping?

Abra 2000 for Employees

- For 10 to 10,000 employees
- Top selling HR system, Mac & PC
- Over 100 Reports + Report Writer
- Starting at \$595 for up to 75 employees

AbraTrak for Applicants

- Find the right candidate—Fast
- Auto letter generator
- 80+ reports, includes EEO & Costs
- From \$995 for Single User

Evaluation System with Manual: \$25 / product

FREE Demo Disk • 408-737-9454



Abra MacDabra
Software

CIRCLE 450 ON READER SERVICE CARD

*"I saw it in
Macworld!"*

**Reach
500,000
Shoppers in
the
MW Shopper**

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Medical

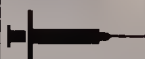
MacAnatomy™ MacSurgery™

...an electronic atlas of Anatomy in 4 vol. on disk in MacPaint™ format. Easily altered & copied to any program via the clipboard. Ideal for students of Anatomy in all the health & legal professions. ...is a HyperCard™ stack w/multi-choice quest & ans. Detailed discussions & documentations are provided. Ideal for continuing education & board prep. MacMedic Publications
5177 Richmond, #1040
Houston, TX 77056
713/960-1858
800/477-0717
713/621-2408 Fax

Care4th™ for Clinicians

- Electronic Medical Records featuring fully customizable templates and prompts, "intelligent" problem lists and reports
 - Clinical Database of unmatched power
 - Decision Support, literature database
 - Alert generator including allergies, interactions, analysis of overdue tests according to your rules, intuitive interface ...and much more. Under \$1000.
- Exclusively Macintosh® - Solo or Group

Med4th Systems, Ltd.
716 East Carlisle Avenue
Milwaukee, WI 53217
(414) 963-1985 Voice/Fax

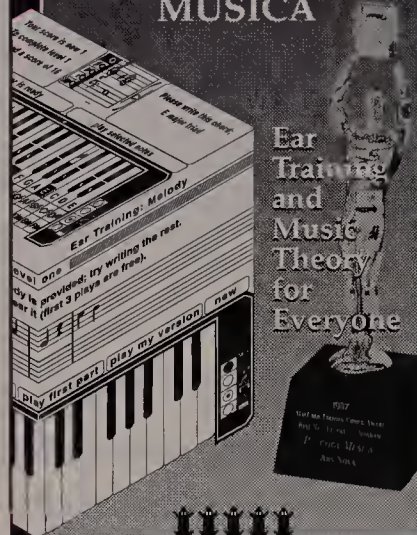


CIRCLE 405 ON READER SERVICE CARD

Music/Midi

VERSION 2.3

PRACTICA MUSICA



Ear Training and Music Theory for Everyone

-MacUser Magazine, August 1990

- Teaches intervals, chords, melody, rhythm
- Interactive staff notation • Saves scores
- High quality sound • MIDI compatible
- Historical & computer-generated melodies
- Custom ear training melodies
- Includes textbook • Beginners to advanced

\$125.00 • Call Toll Free 800-445-4866

ARS NOVA
BOX 637, KIRKLAND, WA 98083

CIRCLE 489 ON READER SERVICE CARD

Real Estate

Save Time, Make More \$\$\$

REAL ESTATE EDGE, Tracks clients, sends letters, envelopes. \$149.95.
PROANALYSIS, produces comprehensive reports for clients, banks, and investors. \$295.

PROPERTY MANAGER, keeps books, prints reports & checks, notices... \$495/995. Call for free literature, Demos \$25.
Transoft Corporation
31 Parker Way
Santa Barbara, CA 93101
800/949-6463

Religion

Church Data Master Plus

now for Macintosh or Windows
CDM+ is the only comprehensive church data management program for either Mac or Windows. Available as single modules or integrated. Membership, Contributions and Accounting. Priced from \$265. Full featured demo with video \$10.

Computer Helper Publishing
5898 Cleveland Avenue
Columbus, OH 43231
800/533-5227
614/895-7071

Perfect Body Parts. 99¢ Each.

MediClip... the first complete medical anatomy and art library for your MAC or IBM.

- Available in high quality EPS and all major formats
 - 3 volumes of 100 images for only \$99 each
- 1-800-998-8705
MediClip™
This offer not valid through retail outlets.

CIRCLE 431 ON READER SERVICE CARD

TessSystem™ : Ins/Billing

Wabash's state-of-the-art software for medical office mgmt. is competitively priced and outperforms any other on the market! Expandable line to grow with your needs. Toll-free customer support. Enhanced features include electronic claims and multi-workstation networking. Aggressive enhancement schedule includes quarterly updates. Have TessSystem™ delivered to your office for as little as \$80/mo.! Call for lit. & DEMO! Wabash Medical Resources, Inc.
8335 Allison Pointe Trail, Suite 260
Indianapolis, IN 46250
317/579-5900
317/579-5901 Fax

Macworld

#1 in bringing buyers and sellers together!

Music/MIDI

Interactive Learning Software

Compose yourself \$99-

Complete "How To" Composing Package
8 Track Sequencer • Chord Computer • Composer Strategies HyperCard Stack • Cassette Tape • Complete Composition Manual • Call for Details

800-MAC-BEAT
505-473-4929 FAX 505-473-4647

Mac BEAT™

CIRCLE 438 ON READER SERVICE CARD

Call Now! **DIGITAL**

Hard Disk Recording, DAT, Macintosh, MIDI Instruments, Coda, Mark of the Unicorn, Passport, Dr.T's, Opcode, Digidesign, Roland, J.L. Cooper and more...

FREE CATALOG 800-MAC-BEAT
505-473-4929 Mac BEAT™

CIRCLE 433 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call 800.888.8622

CATALOG

MACWORLD
MWShopper

Religion

ROLL CALL

Church Management Software

ROLL CALL, featuring the power of 4th DIMENSION®, is a premier shepherding tool providing church leadership with a full range of management capabilities.

• Attendance • Visitation Mgt. • Directories
• Personal Records • Pledges • And More!

ORDERLINE: 1-800-554-9116

\$495⁰⁰ Comprehensive Package / Demo \$5⁰⁰

By The Numbers • 58117 Homer Avenue
Elkhart, IN 46517-3207 • 219-293-4893



Thompson Chain HyperBible™
The ONLY Bible study software that
uses the Thompson Chain-Reference®
system. More than a Bible word-
search program, Complete with:
• Maps • Outline Studies • Over
100,000 Marginal Notes • Over 7,000
Topical Studies • Character Studies
• Exporting • Archaeology Supplement
• Helps • Extensive Concordance
Order today \$149, Demo \$5.00
• C / VISA • Overnight Available
Pirbright Technology
35 West 9th Street
Indianapolis, IN 46206-0606
800/428-4385 Ext.112

Sales/Marketing

Sell More, Work Less!!!
MARKET MASTER AUTOMATES the sales
follow up you don't have time for and
keeps the contacts happening! More than
mere contact manager, it's a SALES
HANDLER! You get unmatched
simplicity and maximum control. Versions
available for one rep or a whole sales
force! Six years on the market –
everything works. 30-Day money-back
guarantee. Demo Disk \$10.00.
Breakthrough Productions
10 Park Avenue
Nevada City, CA 95959
16/265-0911
16/265-8036 Fax

Scientific



RockWare Scientific Software

4251 Kipling St., Suite 595
Wheat Ridge, CO 80033
(303) 423-5645 • FAX (303) 423-6171
RockFAX • (303) 423-7112
*FAX on-demand product information

**FREE
SOFTWARE
CATALOG!**
Over 300 scientific
applications
for the
Mac & PC!

Shareware

GREAT COLLECTIONS for Macintosh

- Games
- Education
- Religion
- Hypercard
- Business
- and more!



PAY ONLY \$9.95

PER COLLECTION
(Including Shipping & Handling)
for 6 disks full of software

Foreign add \$5.00 per collection.
Credit Cards Only.

Satisfaction guaranteed since 1985

SMC SOFTWARE PUBLISHERS
619-931-8111
Ext. 511

CIRCLE 487 ON READER SERVICE CARD

*"I saw it in the
MW Shopper"*

Computer Insurance

COMPUTER INSURANCE PLUS

- + Replacement with no depreciation
- + Covers computer hardware in home or office
- + Easy to read policy
- + Bonus 20% for software coverage
- + Low \$50 deductible
- + Covers theft, fire, power surges, accidents,
natural disasters, even earthquakes and flood
- + Policy backed by an A+ company

THE COMPUTER INSURANCE
AGENCY, INC.

6150 Old Millersport Road, NE
Pleasantville, OH 43148

1-800-722-0385

CIRCLE 523 ON READER SERVICE CARD

Computer Repair

MAC REPAIR

Mac Shop Northwest

- Apple™ Certified Technicians
- One-Day Service Turnaround*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates
- Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards
- Lifetime Repair Warranty*

*on many repairs. Visa/MC/AX. Fast overnight
shipping available. We use genuine Apple™ parts.

1-800-MAC-SHOP

CIRCLE 515 ON READER SERVICE CARD

Services

Computer Insurance



SAFEWARE
INSURES YOUR
COMPUTERS

Full replacement of hardware, media,
purchased software. As low as
\$49 yearly. Covers fire, theft, power
surges, other accidents. Blanket
coverage; no list of equipment
needed. Call for information or
immediate coverage.

1-800-848-3469
Local (614) 262-0559

SAFEWARE, The Insurance Agency Inc.
2929 N. High Street, P.O. Box 02211
Columbus, OH 43202

CIRCLE 522 ON READER SERVICE CARD

!!REPAIR BY MAIL

Real low cost, super fast turn-around.
Mac Plus, Mac logic boards \$95+ parts;
1 yr. warranty. Plus and SE power sweep
swap as low as \$69+ s/h; 1 yr. warranty.
Drive repairs as low as \$35. Keyboard
repairs as low as \$12.50+ s/h. New and
used hardware for sale. School orders
welcome. Open 12 noon-5, 6:30-10pm
eastern M-Sat. We buy dead Apples,
Macs, PCs.
Arminius Pubs. & Prods. Inc.
8519 Orchard Ave.
Merchantville, NJ 08109
609/662-3420

For your ad to appear in The Macworld Shopper, please call 800.888.8622

Data Recovery



CPR has been recognized in national magazines for its data recovery techniques and the ability to repair SCSI drives.
Computer Peripheral Repair & Recovery Services, Inc.

"Data Crash! ... We're Going In!!"

7570 S. U.S. Hwy. 1, Ste. 8 800-765-9292 407-586-0011 Ph
Hypoluxo, FL 33462 407-582-7921 Fax

CIRCLE 452 ON READER SERVICE CARD

Data Recovery/Consulting

...Reasonable Rates/Fast Turnaround.
Call 9am to 9pm - 7 days a week or leave a message anytime. PHONE BEFORE SENDING A DRIVE!...Expert advice in all areas of the Mac. New and used hardware available - setup to your specifications. Call for advice, pricing and availability.

....We are interested in your old hardware that is in good condition. Call and let us know what you have.

Business Computer Pro
P.O. Box 9067, 1461 Nebraska #4
Casper, WY 82609
307/472-2010

*"I saw it in the
MW Shopper"*

WE CAN SAVE IT!



- ★ Macintosh Data Recovery
- ★ Repair any Mac Hard Drive
- ★ Optical/SyQuest Recovery
- ★ Fast Nationwide Service

30-D Pamaron Way
Novato, CA 94949

CIRCLE 510 ON READER SERVICE CARD

Slides

We Image

MAC
MAC
MAC
MACINTOSH
MACINTOSH

MACINTOSH ONLY

In NY State Call
212.989.2727
Outside NY State Call:
800.445.9002

**Nextwave
Productions
NYC, NY**

\$5 Non-PostScript \$10 PostScript
24-hr slides, 4K resolution (standard)
Volume discounts and rush available.

CIRCLE 488 ON READER SERVICE CARD

Sep-FreeSM Color
Short Run Printing
quality without plates & separations

Slides from \$3.00
Scans, Overheads

Mastercard/Visa - 24 Hr. Service
Elegant Graphics
750 Princeton Ave, Box 774607
Steamboat Springs, CO 80477
(303) 879-4334, FAX (303) 879-5206
Modem/BBS (303) 879-5210

CIRCLE 527 ON READER SERVICE CARD

SlideImagers[®]

PostScript[™] Imaging

Overnight
\$4.95
Digital Output

- Slides
- Overheads
- Canon Fiery Color Lasers

24-hour turnaround standard.
We support all major software packages with fast, efficient service and unbeatable quality. See how easy imaging can be...
CALL TODAY!

(800) 232-5411
(404) 874-6740

NOW AVAILABLE:
Scanning Services
(Rates based on system time)

*Quality So Good...It
Should Cost More!*

CIRCLE 456 ON READER SERVICE CARD

**Everything for your
Macintosh, and more!**
The MW Shopper

Laser Recharge

reconditioned

TONER cartridges!



BETTER THAN NEW!

- 20% MORE TONER
- DARKER PRINT
- 100% GUARANTEED

Willow Products Corp.
3857 Willow Ave, Pgh, PA 15234

for laser printers
& Canon PC Copiers

From **\$44.95**

We buy empties
call for brochure
800-426-8196



CIRCLE 445 ON READER SERVICE CARD

Video

Mac Graphics to Video & Film

- We Output Animation, Slide Graphics or Any Image to All Video Formats: Betacam-SP, S-VHS, 3/4," Hi-8 and Laserdisk. Digital Rotoscoping...
- Slide Output in 4k & 8k Res, and Hi-Res Varityper Output Available.

DELTA IMAGING
45-12 74th St., Queens, NY 11373

Tel. (718) 779-4400
Fax (718) 458-3497

CIRCLE 418 ON READER SERVICE CARD

The Macworld Shopper
DELIVERS!

For your ad to appear in The Macworld Shopper, please call 800.888.8622

CATALOG

MACWORLD
MWShopper

Advertiser
Flexibility:

Start small,
grow

BIG!

Keep your
merchandise
moving in
the direct
channel
with a
limited
budget. The
MW Shopper
offers you
the best
solution to
reach
500,000
active
shoppers

Accessories

Cases

FOR ULTIMATE PRODUCT PROTECTION! Buy Reusable A.T.A.* Cases



*STAR CASES exceed testing criteria, simulating 100 airline trips, as established by the A.T.A. (Air Transport Association of America)

"FREE"
Case
Catalog

When transporting anything valuable or fragile, insist on the Ultimate Product Protection.

STAR CASE

(800)822-STAR
(800)782-CASE

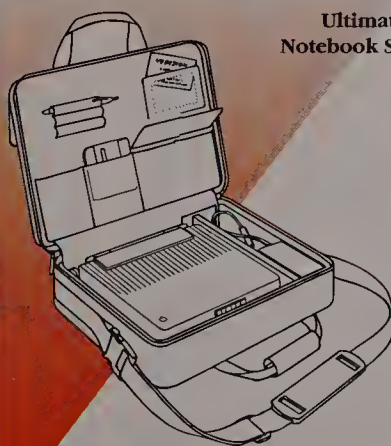
CALL FOR PRICING

All major credit cards accepted

CIRCLE 558 ON READER SERVICE CARD

"Carry computers in style
with best bags on market"

- DON CRABB



Ultimate
Notebook SL

1-800-241-2122

Other Macintosh cases available

We've Got Your Case!

CIRCLE 459 ON READER SERVICE CARD

Pack your
Powerbook
in seconds!



WEST
RIDGE
DESIGNS

1236 N.W. Flanders, Portland, OR 97209

CALL TOLL FREE! 1-800-548-0053

CIRCLE 444 ON READER SERVICE CARD



A 50-YEAR
TRADITION
**ZERO
HALLIBURTON**

The Best Case Scenario

Airline Check-in or Local Use

Zero Halliburton Aluminum Mac Cases:

Lightweight, Durable, Distinctive Styling

PowerBook & Portable Attaches Classic/Plus/SE

Ilcx/ci IIsi LC IIsi/fx Monitor & Printer Cases

from \$299.95 1-800-542-4591
1-310-578-9710

TCC 131/01 Wash Blvd #110 L A CA 90068

CIRCLE 403 ON READER SERVICE CARD

For your ad to
appear, call
800.888.8622

MACWORLD
MWShopper

Covers

DUST COVERS

ALL FABRIC
• Heat Ventilating, will not become stiff or crack with age! • Easy to Use • Machine Wash & Dry!
• Highest Quality, Custom-Fit!
• All makes & models! • Custom orders! • Tan, Navy, Royal, Red, Maroon, Gray, Brown or Black.
• 100% Satisfaction Guaranteed!
• Outstanding service since 1983!

11-30 Mac Classic & Keyboard.....	24.95	10-86 Mac SE or II Ext Keyboard.....	9.95
10-74 Mac SE & Std Keyboard.....	24.95	11-34 AppleColor 13"HR Mntn.....	19.95
10-75 Mac SE & Ext Keyboard.....	24.95	11-23 Radius Pivot Monitor.....	24.95
11-35 Mac IIsi Computer Only.....	15.95	10-95 Radius TPD - 19".....	24.95
11-36 Mac IIsi, 13"HR Ctr & Kb.....	29.95	11-22 Super Mac 19" Ctr Mntn.....	29.95
11-37 Mac IIsi, 12" Mtr & Kb.....	29.95	10-37 ImageWriter II.....	15.95
10-73 Mac II, Ctr Mtr & Ext Kb.....	29.95	10-90 LaserWriter II.....	24.95
11-02 Mac II, IIsi, IIsx CPU.....	19.95	11-25 Personal LaserWriter.....	24.95
11-01 Mac IIsi Computer Only.....	15.95	11-52 StyleWriter.....	15.95
10-98 Mac IIsi, Ctr Mtr & E Kb.....	29.95	91-22 H-P DeskWriter.....	19.95
11-33 Mac LC, 13" RGB & Kb.....	29.95	11-40 T.I. microLaser PS.....	19.95
11-32 Mac LC, 12" Mntn & Kb.....	29.95	SKIN Keyboard Skins.....	21.95*

Add \$4.00 Shipping & Handling (Check, MO, COD, VISA/MC) *MW Spcl
CO-DO-CO Computer Dust Covers
4802 W. Wisconsin Ave., Dept. MW, Milwaukee, WI 53208
800-735-1584 414-476-1584 • 476-9329 FAX

CIRCLE 455 ON READER SERVICE CARD

DUST COVERS 100%
COTTON CANVAS

MAC, SE, II, & PRINTERS
Beige w/ Grey Trim Breathable! Static-Free!

NEW! Seal-Skins
For Keyboards

1-(800) 826-5761

Int'l: (415) 587-3002 Fax: (415) 587-2229

Contemporary ComputerWear

201 Chester Ave. San Francisco, CA 94132

CIRCLE 507 ON READER SERVICE CARD

Diskettes

FORMATTED DISKETTES BASF, VERBATIM, SONY

WITH FORMAT	QTY 250 MIX & MATCH	WITHOUT FORMAT
\$4.11	5.25" DS/DD	\$3.36
\$6.62	5.25" DS/HD	\$5.54
\$6.63	3.50" DS/DD	\$5.53
\$9.99	3.50" DS/HD	\$8.89

• **FREE FORMATTING** on First Order
• **TYVEC SLEEVES** & Labels Included
• **COLOR MEDIA** Please Add \$.05
• **VOLUME DISCOUNTS** Available
• **SAME DAY** Shipping
• **MONEY BACK GUARANTEE**

800-255-3142

Diversified Systems Group, Inc.
PO Box 1114, Issaquah WA 98027

CIRCLE 496 ON READER SERVICE CARD

For your ad to appear in The Macworld Shopper, please call **800.888.8622**

MACWORLD

PRODUCT LAUNCH

SECTION

Turn to the Product Launch Section of Macworld for information on the new products in the Macintosh industry.

This is the premiere showcase for new product launches or relaunches. Look to the Macworld Product Launch section—your source for the newest Macintosh products.

**Call your account executive
for more details on advertising
in the Macworld Product Launch section!
(415) 243-0505**

**Who would have
thought your kids could
get scores like this
playing video games?**

REPORT CARD
Math A+
Reading A+
Spelling A+

Most video games simply teach kids how to blow up spaceships and attack aliens with lasers. MacKids software gives them more than exciting games to play. It sharpens their skills in such areas as reading, spelling and math with programs like the Preschool Pack, Word Quest and Turbo Math Facts.

So if you want to make learning fun for your kids, give them MacKids. It's the weapon they need to zap low scores.



Nordic Software, Inc.
917 Carlos Drive • Lincoln, NE 68505-2059

Circle 168 on reader service card

INTELLIGENT ACCESSORIES. VERY SMART PRICES.

Whether you're using a PowerBook, networking Classics, or organizing a single workstation, there's a full line of MediaMate accessories to help you get more out of your Mac. More convenience. More performance. More comfort.

MediaMate. Intelligent accessories. Very smart prices. In stores nationwide.



MediaMate®

©1992 Hunt Manufacturing Co.

PowerBook, LaserWriter and Mac are registered trademarks of Apple Computer, Inc.

Circle 199 on reader service card

Quantum Leap
CD SOFTWARE
PRESENTS

AESOPOLIS™

Everyone loves Mr. Bits, your host and guide through the Greek temples of **Aesopolis**, a new multi-media CD-ROM. Featuring state-of-the-art graphics and sounds, Aesopolis teaches critical thinking skills. For ages 3-83.

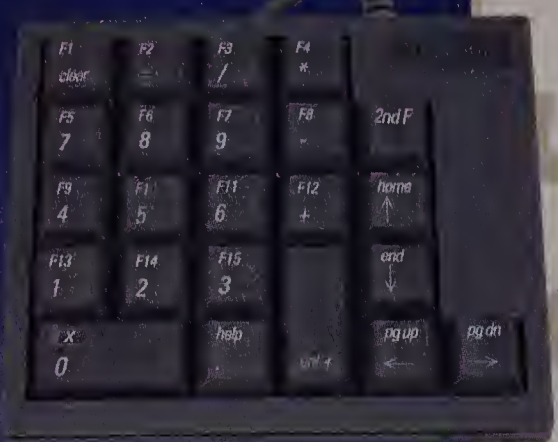
Starring The Ant & The Grasshopper, The Tortoise & The Hare, The Wolf in Sheep's Clothing, many more...

Quantum Leap
CD SOFTWARE
Call 1-800-762-2877
305-885-9985 • Fax 305-885-9986

Join me on an interactive journey through the world of Aesop's Fables.

Circle 101 on reader service card

Add It On. Then, Add It Up.



Plusware's Numeric Keypad adds efficient numeric input to your PowerBook™ equation.

- 23-key keypad
- 15 programmable function keys
- ADB passthrough port
- weight: 7 oz.; height: 0.6"
- free QuickKeys Lite software
- 30-day, money-back guarantee

For just \$129.00, it all adds up to one great value!

+++ BONUS +++
Purchase from Plusware before Dec. 31, 1992 and receive a deluxe PowerBook carrying case (T638L) from Targus - absolutely free!

To order, call toll-free:
1-800-268-7587
(North America)
Tel: (416) 477-0015
Fax: (416) 477-0250

Numeric Keypad for PowerBook™
plusware
Manufactured by Plusware, Inc.

PowerBook is a trademark of Apple Computer, Inc.

Circle 51 on reader service card

NEW! **WORLD'S SMALLEST** **PORTABLE DATA STORAGE** **New Low Prices**

Battery, PS, Charger, & Parallel port inside.
Mac or IBM No cards needed!

 60-120MB HD Use alone or with base below as a removable.	 340MB-1Gig HD	 128/256MB 3.5" Cart. Read/write Optical. State of art.
 60-120MB HD w/6hrs battery	 2-8 Gig DAT compression, 600MB Tape, or 160MB Tape	 44MB or 88MB Syquest Cart. Drive
 Floptical 20MB cart. 3 hr. Battery optional	 Sony CD-ROM NEW High Performance	 Single 2Gig. or Dual Bernoulli, Syquest, CD, r/w Optical or any combination.
 52-240MB HD, 155 Tape, Battery optional.	 90MB Bernoulli Cart. Drive 1/3 size of regular.	 1000MB very fast Maxtor r/w Optical Cartridge Drive Solid State 64-384MB available in same size as above.

Liberty Systems
You're ready to work anywhere there's a computer. Send large documents and graphics between locations. Create a multimedia show and take it on the road. There's no end to the uses you will find for these small wonders. "Microscopic" MACWORLD

(408) 983-1127
Fax (408) 243-2885

Circle 45 on reader service card

World's First Dual Capacity – 256MB/128MB Rewritable 3.5" Magneto-Optical Drive

Introductory Offer – only \$1,748



VISTA V256

- ◆ **Full compatibility** – Vista V256 reads & writes to ISO Standard 128 MB format cartridges, and a true, non-compressed 256 MB to GZ format cartridges
- ◆ **Reliable** – features the acclaimed M.O.S.T. mechanism as used in the award-winning Vista V128 3.5" MO drive
- ◆ **Fast** – transfer rate up to 1.2 MB per second
- ◆ **Economical** – additional 256 MB cartridges only \$89
- ◆ **Versatile** – Mac and IBM compatibility

Order Direct 800.944.6232

O.C.E.A.N O·C·E·A·N Microsystems, Inc.
246 Hacienda Avenue
Campbell CA 95008 USA

Circle 62 on reader service card

Where In The World Is Macworld Expo?



The Macintosh market continues to explode. And MACWORLD Expo is growing right along with it.

The installed base of Macintosh computers has skyrocketed 800% to 4.4 million units since 1985. And that number is expected to almost triple by 1994.*

At the same time, MACWORLD Expo has gone from a single show in 1985 to 17 international expos today.

The fact is, no matter where in the world you find computer users, you'll find MACWORLD Expo—from Auckland to Amsterdam, Sydney to San Francisco, Toronto to Tokyo, Boston to Birmingham.

MACWORLD Expo brings together the people and the companies who are going places. Some come to share tips and techniques. Others to exchange ideas and innovations. Everyone to see, touch, try, and buy the latest in Macintosh products and services.

For information about exhibiting at the most successful trade show series in

the world, complete the coupon and mail it to: MACWORLD Expo, c/o World Expo Corp., P.O. Box 9107, Framingham, MA 01701.

Can't wait? Fax it to us at 508-875-1573.

Everywhere.

* SOURCE: International Data Corporation, August 1990.

We'll send you a world of information.

☐ I'd like to know more about *exhibiting* at the MACWORLD Expos checked below.

☐ I'd like to know more about *attending* the MACWORLD Expos checked below.

- | | | |
|------------------------------------|------------------------------------|--|
| <input type="checkbox"/> Amsterdam | <input type="checkbox"/> Helsinki | <input type="checkbox"/> San Francisco |
| <input type="checkbox"/> Auckland | <input type="checkbox"/> Hong Kong | <input type="checkbox"/> Stockholm |
| <input type="checkbox"/> Barcelona | <input type="checkbox"/> Mexico | <input type="checkbox"/> Sydney |
| <input type="checkbox"/> Berlin | <input type="checkbox"/> Milan | <input type="checkbox"/> Tokyo |
| <input type="checkbox"/> Boston | <input type="checkbox"/> Oslo | <input type="checkbox"/> Toronto |

All MACWORLD Expos are independent trade shows produced by World Expo Corporation, an International Data Group company, the world's leader in information services on information technology. Macintosh and Mac are trademarks of Apple Computer, Inc.

MACWORLD
EXPOSITION

NAME _____

TITLE _____

ORGANIZATION _____

STREET _____

CITY/TOWN _____ STATE/PROVINCE _____

ZIP _____ COUNTRY _____
POSTAL CODE/

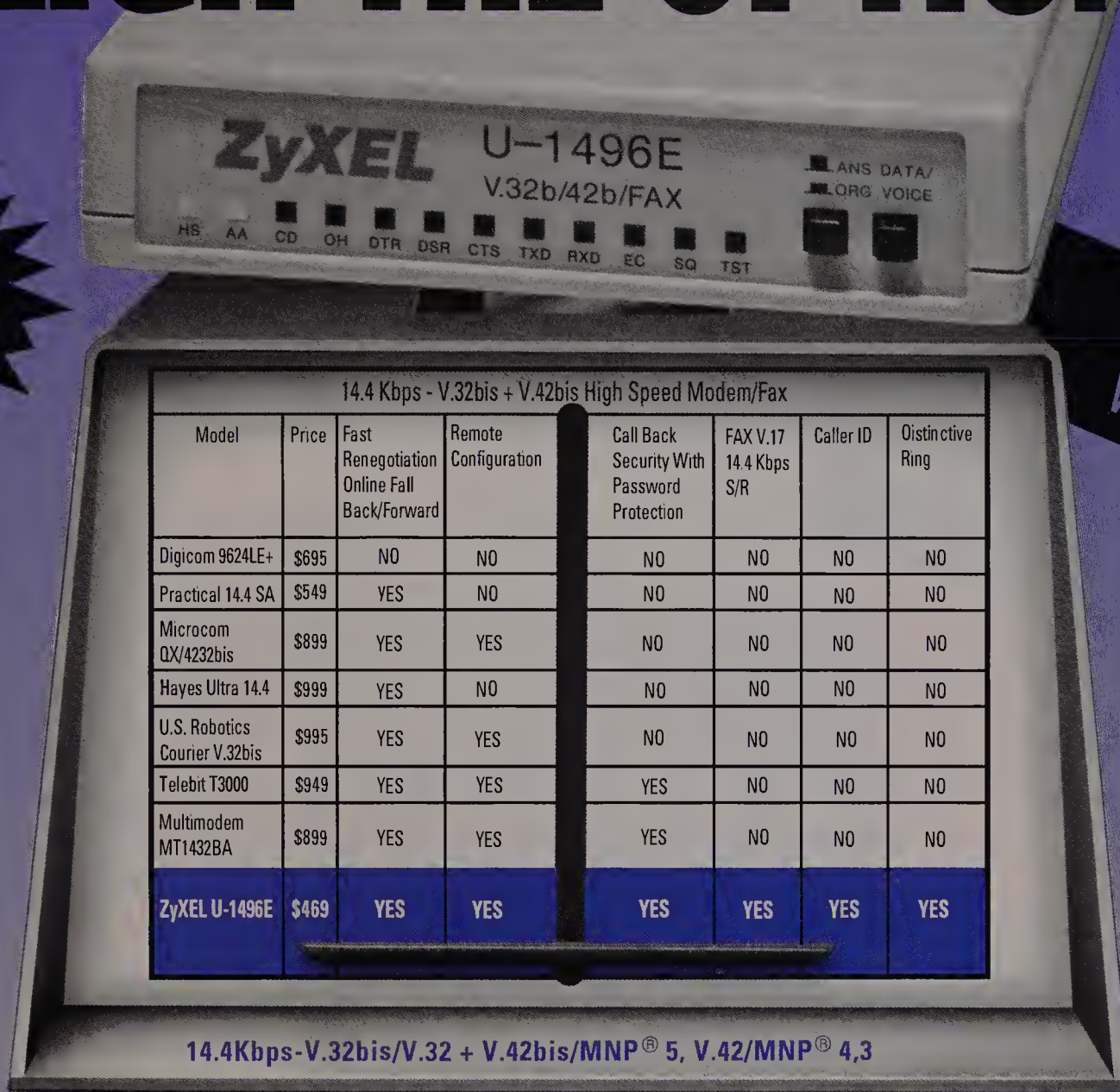
TELEPHONE _____ FAX _____

MW/DEC92

WEIGH THE OPTIONS

**ONLY!
\$469**

Also Available:
PC Plug-In Card
U-1496 B \$449



ZyXEL U-1496E
V.32b/42b/FAX

HS AA CD OH DTR DSR CTS TXD RXD EC SQ TST

ANS DATA /
ORG VOICE

14.4 Kbps - V.32bis + V.42bis High Speed Modem/Fax

Model	Price	Fast Renegotiation Online Fall Back/Forward	Remote Configuration	Call Back Security With Password Protection	FAX V.17 14.4 Kbps S/R	Caller ID	Distinctive Ring
Digicom 9624LE+	\$695	NO	NO	NO	NO	NO	NO
Practical 14.4 SA	\$549	YES	NO	NO	NO	NO	NO
Microcom QX/4232bis	\$899	YES	YES	NO	NO	NO	NO
Hayes Ultra 14.4	\$999	YES	NO	NO	NO	NO	NO
U.S. Robotics Courier V.32bis	\$995	YES	YES	NO	NO	NO	NO
Telebit T3000	\$949	YES	YES	YES	NO	NO	NO
Multimodem MT1432BA	\$899	YES	YES	YES	NO	NO	NO
ZyXEL U-1496E	\$469	YES	YES	YES	YES	YES	YES

14.4Kbps-V.32bis/V.32 + V.42bis/MNP® 5, V.42/MNP® 4,3

Now with
**16.8 Kbps &
Voice Capability**

The features you want in a High Speed-14.4Kbps Modem/Fax. At nearly half the Price!

ZyXEL's U-1496E offers all the standard features available in a 14.4Kbps- V.32bis+V.42bis modem/fax with DTE speeds up to 57.6Kbps. But you'll also find features you'd expect in only the "top-of-the-line" modems. So why pay more for the features you want, when you can get the best value from ZyXEL for less?

Caller ID/Distinctive Ring

Displays the caller's phone number, time and date stamp directly on your screen, and responds to the distinctive rings for incoming fax or modem calls.

Enhanced FAX

14.4Kbps G3 fax with automatic detection of fax or modem calls. Automatically receives, stores and/or prints faxes with our FREE ZFAX software.

Automatic Fast Rate Renegotiation

Online automatic speed fall-back/fall-forward allows the highest throughput achievable during poor line conditions.

Multi-Level Security

Security password protection and automatic call-back features are designed so only authorized callers can access your system.

Nonvolatile Memory Storage

Store up to 4 user configuration profiles in NVRAM, plus up to 10 user phone numbers and their associated passwords.

Software/System Compatible

Supports V.25bis autodial and enhanced AT Command Set, ensuring compatibility with popular communications/fax software. Available with MAC™, Windows™ and DOS fax software packages.

Guarantees

We offer a Full 5 year Parts and Labor Warranty, a 30 day money back guarantee and full BBS technical support line.

Once you've weighed the options, you'll agree: ZyXel's U-1496E offers the best value for less than any other modem/fax in its class. So, don't hesitate. **Call Today.**

ZyXEL USA
(800) 255-4101

Reseller discounts available

TEL (714) 693-0808

FAX (714) 693-0705

BBS/Tech.Support

(714) 693-0762

Visit us at Comdex/Fall '92 North Hall #4644

ZyXEL USA, 4920 E. LaPalma Ave., Anaheim, CA 92807

All brand names and trademarks are the property of their respective owners.
Comparison chart was completed in May, 1992.

Circle 107 on reader service card



Editor's Choice: ZyXEL U-1496E
German Edition, 4/92

INTRODUCING SPECTRA★STAR Q10

(THE MOST COLOR PRINTER FOR YOUR MONEY—EVER!)

✓ CRITICALLY ACCLAIMED PRINT QUALITY

MacUser rated Spectra★Star™ **Four Mice** and reviewers at MacUser U.K. gave us **Four and a Half Mice**. InfoWorld picked the Spectra★Star as **Best Buy** while PC Magazine U.K. awarded us the **Editor's Choice**.

✓ FAST RISC PROCESSOR (20MHz)

They all raved about our image quality. But don't forget about our speedy throughput thanks to an impressively fast 20 MHz Intel RISC processor.

✓ MOST MEMORY (10MB RAM)

Spectra★Star Q10 comes with 10MB—the most of any color printer in its class. And with the trend toward ever larger, more complex graphic files you know you'll be covered both for today's requirements and in the future.

Get dazzling prints, spectacular overhead transparencies and full color T-shirt transfers from your Spectra★Star.



✓ POSTSCRIPT LEVEL 2 PLUS 52 PROFESSIONAL FONTS

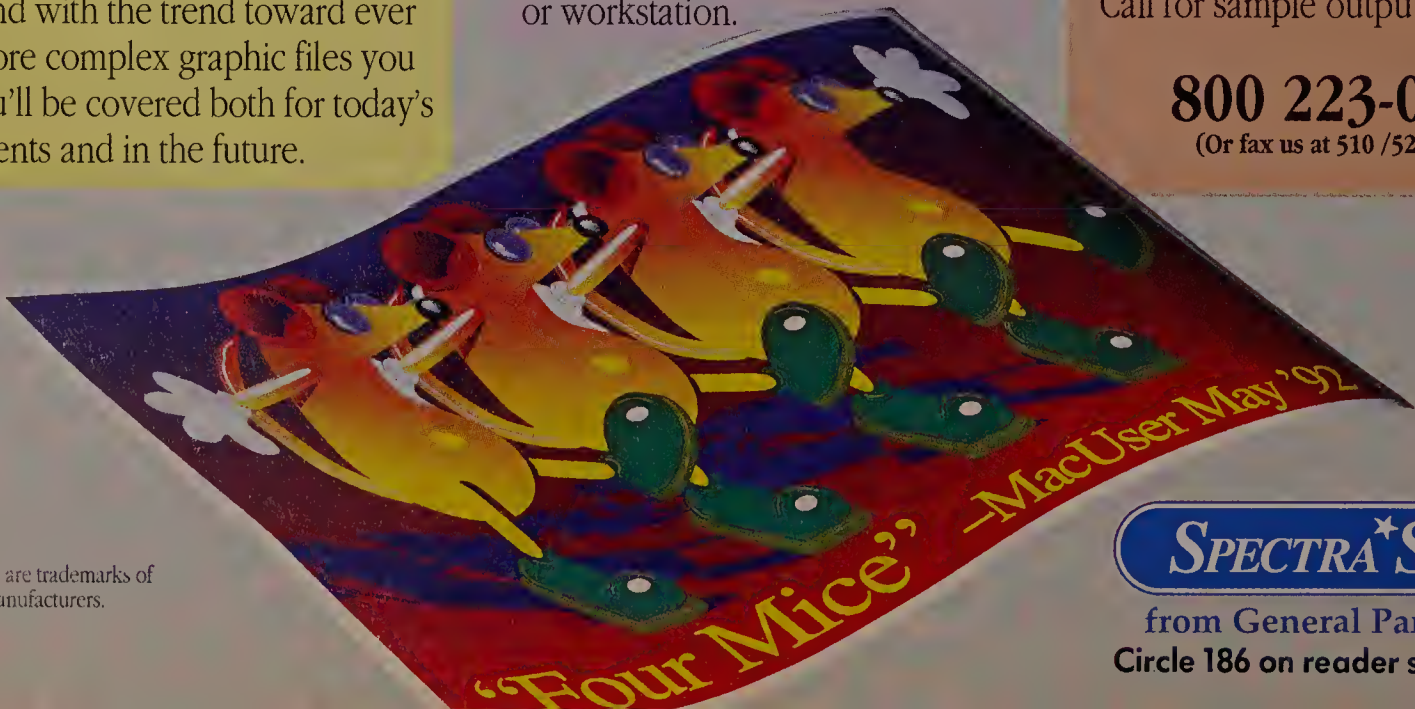
Spectra★Star Q10 comes standard with 52 professional fonts. Plus you get Level 2 PostScript®, TARGA® and HPGL® compatibility along with Pantone® certified color matching. Print from all your favorite software programs using any PC, Macintosh or workstation.

✓ AT A GREAT PRICE \$4,999.

The new Spectra★Star Q10—the best available combination of highest quality output, speed and unsurpassed features at the lowest price—ever!

Call for sample output or a demo

800 223-0999
(Or fax us at 510 /524-9954)



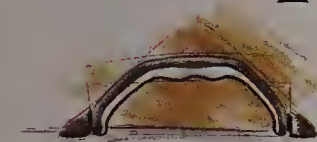
All product names are trademarks of their respective manufacturers.

SPECTRA★STAR™

from General Parametrics
Circle 186 on reader service card



Port™: the best cradle for your notebook



Swiss made Handle :

Designed for maximum grip and comfort, Port's Swiss made handles are ergonomically contoured on the inside and reinforced with metal on the outside.



Metal fittings :

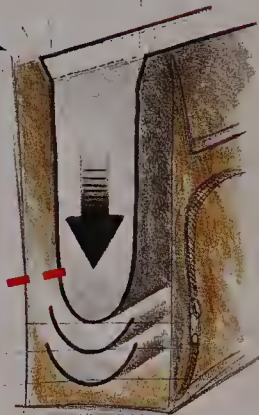
Tough metal hardware anchor both the straps and the contoured handles, heavy duty nylon zippers provide durability and dependability.

High Tech microline :

Our cases are constructed with an outside layer of high tech microline nylon and padded underneath with impact resistant closed cell foam to further cushion and protect your computer.

Shock absorption system :

Developed and patented by PORT, the SafePort™ shock absorption system offers a level of protection that far exceeds our competition.



The difference is, where others simply pad your notebook, we quite literally defend it. SafePort™ actually cradles your notebook, suspending your computer on a cushion of air that works like a shock absorber to deflect and protect your computer from whatever the road can throw your way.



Colors Available :



Black



Burgundy



Gray

Ergostrap :

The straps are ergonomically designed to hold the contour of the human shoulder while twin strap adjustments keep the bag centered and stable.

Our cases are designed and engineered to hold all of the items you need to carry. Along with your computer there is room for a printer, A/C adaptator, phone and spare batteries. Plenty of pockets are conveniently located for pens, calculators, note pads, magazines and other miscellaneous items.

Port™... A completely unique line of cases distinguished by incomparable design, unmatched quality and an unbending attention to the smallest details.

To order today for immediate delivery, call

1.800.242.3133



The PORT promises :

- We offer a lifetime limited warranty to the original owner.
- If not satisfied, return within thirty days.
- Fits all sizes of NoteBook computers.



PORT 886
Colors : Black, Burgundy, Gray
Styles : **886L** : L 18", H 13", W 4"
\$169.00
886S : L 14", H 11", W 4"
\$139.00



PORT 786
Colors : Black, Burgundy, Gray
Styles : **786L** : L 16", H 15", W 4"
\$149.00
786S : L 14", H 15", W 4"
\$129.00



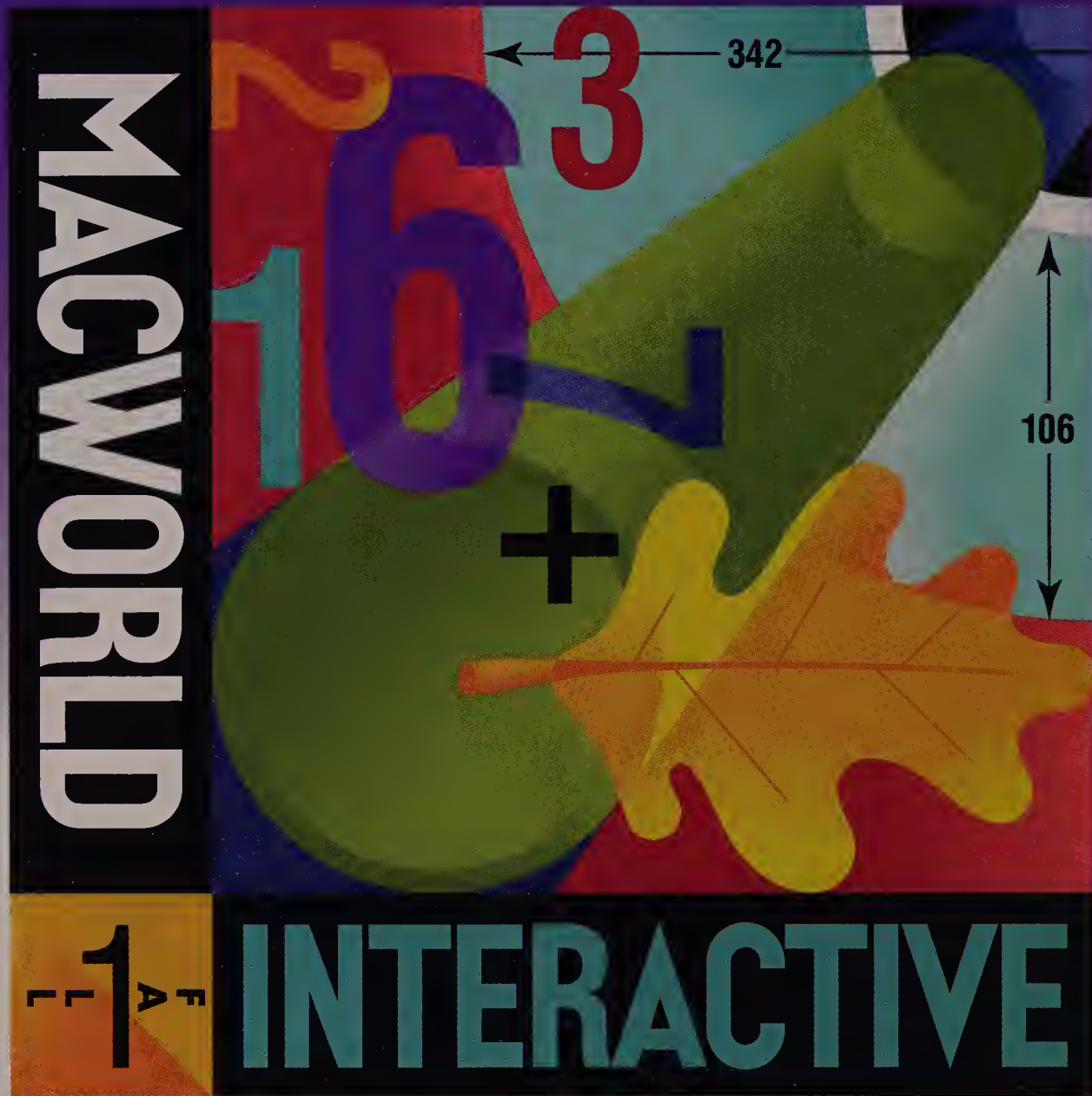
PORT 586
Colors : Black
Style : **586** : L 13", H 12", W 3"
\$49.00



The Difference

Circle 123 on reader service card

Subscribe Now



Macworld Interactive™ CD ROMs

Macworld Interactive™ is the interactive, multimedia version of Macworld Magazine. Each CD ROM issue contains selected articles from Macworld with QuickTime™ movies, multiple languages, voice/sound and interactive navigation of the CD.

Call or mail in your order today.

☐ **YES! I WANT THE SUBSCRIPTION OFFER**
Volume I - Five CDs \$129.95 + shipping

☐ **I WANT TO TRY ONE**
Volume I Fall - ONE CD \$29.95 + shipping

Name _____
Address _____
City _____ State _____
Zip _____ Phone _____
☐ MC ☐ VISA _____ Exp Date _____
Signature _____

Make check or money order payable to:
SUMERIA
PO Box 2030
Shingle Springs, CA 95682

Phone order 1-800-848-6645 ext. 25
Fax orders: 916-677-3919

* All orders payable in US dollars. Add \$8 shipping cost to subscription orders(5 CDs). Add \$2.50 shipping to single CD orders. Residents of California add applicable sales tax. Foreign orders add \$5 per CD(\$25 for Sub orders).

Macworld Interactive™ is a trademark of Sumeria, Inc.
QuickTime™ is a trademark of Apple Computer, Inc.

MACINTOSH MARKETING SEMINAR

FEBRUARY 18 & 19, 1993
FAIRMONT HOTEL, SAN FRANCISCO



THE ONLY CONFERENCE DEDICATED TO MARKETING ISSUES IN THE MACINTOSH COMMUNITY.

SESSIONS

PANEL SESSIONS WILL FOCUS ON MACINTOSH MARKETPLACE ISSUES, CHANNEL CHANGES, EFFECTIVE PRODUCT LAUNCHES, MARKETING CAMPAIGNS, INTERNATIONAL MARKETING, STRATEGIES FOR POSITIONING PRODUCTS, COPYRIGHT AND SOFTWARE PROTECTION, RESEARCH FINDINGS, AND SOFTWARE DISTRIBUTION.

PLUS

SPECIAL INFORMAL SESSIONS WITH MACINTOSH CONSULTANTS.

REGISTRATION

\$395 INCLUDES ALL SESSIONS, CONFERENCE MATERIALS, BREAKS, LUNCHEONS, AND RECEPTION. CHECKS SHOULD BE MADE PAYABLE TO SUMERIA INC., AND SENT TO:

SANDY BUTLER
EVENTS MANAGER
SUMERIA
329 BRYANT ST., STE. 3D
SAN FRANCISCO, CA 94107

FOR ADDITIONAL INFORMATION CONTACT THE EVENTS AND CONFERENCES DEPARTMENT: AT 415/904-0811, FAX: 415/904-0888.

Try Before You Buy!

Special Charter Subscription Offer!

When was the last time you bought a new car without taking a test drive? Too risky, right? So why should you spend hundreds, maybe thousands, of dollars on the purchase of your Macintosh® products without trying them out first?

You shouldn't.

You want to view demos. Print literature. Compare product features. And work with **FREE** trial software.

That's why Macworld CD Ventures™ has introduced an intelligent new way to make your purchasing decisions easier. We'll let you "kick the tires" before you buy with **The Macworld Resource CD.**

The Resource is a high-tech consumer toolkit complete with trial software, product demonstrations and printable information from top Macintosh hardware and software companies.



Call toll-free for faster delivery!
1-800-845-1924

If you buy Macintosh products, The Macworld Resource CD is for you. Take advantage of our Special Charter Subscription Offer and subscribe today. You save over 37% off the single edition price of \$19.95.

☐ **YES!** Please send me a one-year (4 quarterly CDs) *Macworld Resource CD* subscription for only \$49.95.

☐ **YES!** Please send me the Fall '92 edition of *The Macworld Resource CD* for only \$19.95.

Name

Company

Address

City/State/Zip

☐ Payment Enclosed ☐ M/C ☐ Visa

Card Number Exp. Date

Signature

Clip and return to: **Macworld CD Ventures,
501 Second Street, San Francisco, CA 94107**

Note: GA, NJ, CA and IL residents add applicable sales tax. Special Shipping and Handling: Residents of Mexico add \$5 for single issue order and \$20 for one-year subscription. Residents of Canada add \$5 plus \$1.75 GST for single issue order and \$20 plus \$4.90 GST for one-year subscription. Foreign residents add \$12.50 for single issue order and \$50 for one-year subscription.

Payment must be made by check, money order, Visa, or MasterCard.

Circle 195 on reader service card.

The Resource features:

TECH REPORT: The first QuickTime™ "TV Program," a 30-minute interactive show on the latest technology trends.

PRODUCTWORLD: Your interactive consumer toolkit. Get detailed product literature; run interactive demos; get "hands-on" with trial software.

THE DIRECTORY: An up-to-date, comprehensive database of thousands of Macintosh products.

The Macworld Resource CD. Employing the latest multimedia technology. Delivering the hottest products for your personal evaluation. Bringing you the power to make informed buying decisions. Subscribe to **The Resource** today.



"YOU ASKED FOR IT, YOU GOT IT"

Create your own CD-ROM Explosion!

CD-ROM Drives

All drives come complete and ready to run on Macintosh computers. Your choice of cable. Specify #981 MAC to SCSI or #982 SCSI to SCSI. \$50 off the EDUCORP Shareware CD with purchase of any drive.

CD-ROM Drive	Access Time	Buffers	SCSI Settings	Volume Control	Audio Software	SCSI Ports	Terminator	Termination	RCA Jacks	Maximum Voltage	Data Transfer	Reliability MTBF	Warranty	MAC Price	MAC Part#
NEC CDR-37	450ms	64K	Dip Switch	Dial	Music Box DA	1	Not Included	Internal Termination	No	120 Volts	150K/Seconds	10,000	2 Year	\$449	1969
NEC CDR-74	280ms	64K	Dip Switch	Dial	Music Box DA	2	Included	Not Terminated	Yes	220 Volts	300K/Seconds	25,000	2 Year	\$639	1970
CD Tech CD-T3301	325ms	64K	Push Button	Dial	CD Remote DA	2	Not Included	Not Terminated	Yes	250 Volts	150K/Seconds	50,000	2 Year	\$579	1981

2 FREE CDs-America Alive and Multimedia HANDisc with the purchase of CD-Technology Porta Drive.

We'll meet or beat any advertised price on CD-ROM products

CD-ROM Drive Bundles

CD Tech T3301 Porta Drive, 11 CD-ROM titles, speakers and headphones \$699!

Includes drive, Labtec speakers w/AC adapter, stereo headphones, 11 CD-ROM titles, cable, driver software, and power supply.



Titles included are:

- World Atlas • Multimedia Encyclopedia
 - Publish It! • Desert Storm • Cosmic Osmo
 - Beethoven's String Quartet #14 • Color It!
 - EDUCORP CD Sampler • Boston Expo CD
 - PLUS coupons for 2 FREE multimedia titles:
 - Multimedia HANDisc • America Alive
- You pay just \$699 (retail value \$2399)
#D1981 limited time offer!!!

NEC Drive Bundles

These new NEC bundles include an NEC CD-ROM Drive, external amplified stereo speakers, batteries, headphones, driver software, cables and up to 11 CD-ROM titles for as low as \$399!

NEC Multimedia Gallery \$799

Includes the NEC CDR-74 CD-ROM drive with 7 CD-ROM titles: • Grolier Multimedia Encyclopedia • Just Grandma and Me • Great Wonders of the World • Sherlock Holmes Consult. Detective • U.S. Atlas • Color It! • EDUCORP CD Sampler
You pay \$799! (value of \$1860) #M1970

NEC CD Express \$399 no headphones

Includes the NEC CDR-25 CD-ROM drive with 11 CD-ROM titles: • Publish It! • World Atlas • Lucasfilm Favorites • Total Baseball • Interactive Storytime • The Family Doctor • Great Cities/World v.2 • Aesop's Fables • Manhole • Best of the Bureau • EDUCORP CD Sampler
You pay only \$399! #C1964

Create your own bundle!

"You asked for it, you got it"

When you purchase ANY CD-ROM drive from EDUCORP, you now have the option of creating your own CD-ROM drive bundle!

Start your CD-ROM library with the titles you want. Here's 28 titles on a variety of subjects for you to choose from. Have fun!

#	CD-ROM Title	Retail Price
B1.	World Atlas.....	\$79.95
B2.	Multimedia Encyclopedia.....	\$395.00
B3.	Time Table of History	\$129.00
B4.	Desert Storm	\$39.99
B5.	Cosmic Osmo	\$59.95
B6.	Beethoven's String Quartet #14	\$66.00
B7.	Multimedia World Fact Book	\$99.00
B8.	US History.....	\$395.00
B9.	The Orient	\$199.00
B10.	Sherlock Holmes Consulting Det.....	\$69.95
B11.	Environmental Data Disc	\$189.95
B12.	Economic Data Disc	\$189.95
B13.	US Atlas	\$79.95
B14.	Lucas Game Pack (only available for bundle)	
B15.	Color It!.....	\$299.95

Choose from 28 CD titles

- Pick any 3 titles listed below for only \$89.95 (code CB3)
- 5 for \$149.95 (code CB5)
- 8 for \$199.95 (code CB8)

B16.	Publish It!	\$199.95
B17.	SportsROM	\$69.95
B18.	FM Waves Artware.....	\$149.00
B19.	DTPro.....	\$149.00
B20.	Manhole.....	\$34.95
B21.	Scenic & Nature III.....	\$129.00
B22.	Scenic and Architecture	\$129.00
B23.	600 Days to Cocos Island	\$129.00
B24.	Boston Expo CD	\$15.00
B25.	Funny: A movie in QuickTime	\$39.99
B26.	The Orchestra	\$79.98
B27.	Sports Illustrated- Almanac.....	\$59.95
B28.	Word Tales	\$49.99

More CD-ROM drives and optional bundles available, call.

275+ CD-ROM titles in stock

We'll meet or beat any advertised price on CD-ROM products!

Desktop Publishing

- 1857 BackIMPACT! Pro.....149.95
- 1680 GraphTec 450 color, b/w EPS.....49.95
- 1807 Marble & Granite-NEW!.....279.00
- 1856 SlickART Plus Lettering/bkgnds199.95

Digital Stock Photography!

- 1696 Nature's Way.....79.95
150 beautiful nature scenes.
- 1822 Ocean Magic.....89.95
- 1595 Swimsuit CD.....199.00
- 1735 People in Business.....129.95
200 color photos including background image of business man.
- 1813 World Travel v.1: Europe.....129.95

Education

- 1924 ABC Songbook.....29.95
Rockin' tunes and funny stories through all 26 letters of the alphabet.
- 1893 Berlitz Think & Talk French.139.95
- 1785 View from Earth.....64.95
- 1566 Dictionary/Living World 2.5....199.00
EDDY Award Winner!
- 1925 Dinosaurs Multimedia Encyclopedia.....149.00
100 movie clips and animations, index, skeletons, interview paleontologists, more!
- 1570 LifeSaver 2.0.....99.00
- 1753 Creepy Crawlies.99.00
Discover beetles, bugs, spiders w/QuickTime, more.

Video/Tools for Multimedia

- 1677 ClipTime v.1.....169.95
- 1919 ClipTime v.2.....199.00
- 1701 Digital Video Library.129.95
- 1565 Grooves 100 music clips..99.00
- 1659 WraptureReels One....179.95
- 1653 Wraptures One textures.95.00
- 1990 Wraptures Two.....95.00

Entertainment/Consumer

- 1300 EDUCORP CD-ROM 7.0.....199.00
NEW! Over 1 gigabyte of software!
- 1908 Battle Chess.....59.95
- 1327 Exotica-ROM 3.0-NEW!.....199.00
200 exotic pictures. QuickTime video with artist Olivia De Berardinis.
- 1849 Funny QuickTime comedy clips.....33.00
- 1306 Manhole.....29.95
- 1598 Macworld Superstacks.....15.00
- 1909 So You Want to be a Rock-n-Roll Star Teaches piano and guitar.....99.95
- 1737 Sherlock Holmes Consulting Detective Solve 3 murder mysteries 59.95
- 1583 Spaceship Warlock 69.95
An epic sci-fi adventure.

SHAREWARE

800K disks as low as \$4.99ea.

Disks start at \$6.99 ea, buy 5 for \$5.99 ea, or buy 10 or more \$4.99 ea.

800K Disks

- 4414 MacConcept 3-D graphics program.
- 2129 ResEdit/CICN Editor
Edit and manipulate resources.
- 2169 System 7 Utilities v.1 - NEW
13 great utilities for System 7 users.
- 3936 Color Startup Screens v.1 - NEW
- 2122 Virus Stompers
Contains the latest version of Disinfectant.

3948 Color Arcade Games v.1 - NEW



Four System 7 compatible color games.

- 7204 Clip Art Stack 490 bitmapped pictures.
- 4291 Arcade Games v.2 - NEW
Glider, Pararena and 3 other fun games.
- 3460 Early Education v.2 - NEW
Contains MacTuberling and 3 more fun programs for kids.
- 4650 System 7 Beep Sounds v.2 - NEW
Double click on a file to hear it. Copy it to your System file to add new beep sounds. Choose from over 40 different sounds.

NEW! 5-Disk Sets \$24.95 ea.

- 1123 Best of Utilities v.3 Some require System 7.
- 1124 QuickTime Set 5 QuickTime movies for a color Mac. QuickTime included.
- 1118 Best of EPS Clip Art v.2
- 1126 Best of True Type Fonts v.2
Over 40 great fonts for System 7 users.
- 1117 Best of Color Games v.2 11 color games.
13" monitor or larger required w/256 colors.



EDUCORP 1-800-843-9497

Toll-free in the U.S. and Canada



Free catalog!

Call for your free color catalog.

WS Prices subject to change without notice • EDUCORP • 7434 Trade Street • San Diego, CA 92121 • Orders 1-800-843-9497 • Info 619-536-9999 • FAX 619-536-2345 • Dealer Inquiries Welcome

Circle 157 on reader service card

Best-Sellers

DECEMBER 1992

Months on chart
▼ Last month
▼ This month

Business Software

82	3	1	Microsoft Excel <i>Microsoft Corporation</i>
13	1	2	Microsoft Office <i>Microsoft Corporation</i>
91	2	3	Microsoft Word <i>Microsoft Corporation</i>
43	5	4	FileMaker Pro <i>Claris Corporation</i>
12	4	5	MacDraw Pro <i>Claris Corporation</i>
5	6	6	ClarisWorks <i>Claris Corporation</i>
29	8	7	Quicken <i>Intuit</i>
43	7	8	WordPerfect for the Macintosh <i>WordPerfect Corporation</i>
21	11	9	MacProject <i>Claris Corporation</i>
12	10	10	Aldus Persuasion <i>Aldus Corporation</i>
66	9	11	MacDraw II <i>Claris Corporation</i>
67	13	12	MacWrite II <i>Claris Corporation</i>
6	12	13	1-2-3 for the Macintosh <i>Lotus Development</i>
78	14	14	Aldus PageMaker <i>Aldus Corporation</i>
29	—	15	Adobe Illustrator <i>Adobe Systems</i>

Education Software

44	4	1	Where in the World Is Carmen Sandiego? <i>Brøderbund Software</i>
28	—	2	Where in the U.S.A. Is Carmen Sandiego? <i>Brøderbund Software</i>
25	2	3	Where in Time Is Carmen Sandiego? <i>Brøderbund Software</i>
3	—	4	The Playroom <i>Brøderbund Software</i>
15	3	5	Math Rabbit <i>The Learning Company</i>

Months on chart
▼ Last month
▼ This month

Entertainment Software

56	2	1	Microsoft Flight Simulator <i>Microsoft Corporation</i>
2	—	2	Space Quest III <i>Sierra On-Line</i>
3	1	3	King's Quest IV <i>Sierra On-Line</i>
20	5	4	Crystal Quest <i>Casady & Greene</i>
31	3	5	Tetris <i>Spectrum HoloByte</i>

Network/Data Communications

37	1	1	PhoneNet <i>Farallon Computing</i>
60	3	2	AppleShare <i>Apple Computer</i>
6	2	3	AppleTalk Remote Access <i>Apple Computer</i>
15	5	4	Netware for Macintosh <i>Novell</i>
20	—	5	White Knight <i>FreeSoft Corporation</i>

Add-In Boards

20	1	1	Macintosh IIx NuBus Adapter Card <i>Apple Computer</i>
24	2	2	Macintosh Display Card 8•24 <i>Apple Computer</i>
21	3	3	Pivot <i>Radius</i>
19	—	4	Radius TPD Interface <i>Radius</i>
6	5	5	Macintosh IIx Logic Board Upgrade <i>Apple Computer</i>

Months on chart
▼ Last month
▼ This month

Utility Software

19	1	1	After Dark <i>Berkeley Systems</i>
9	2	2	More After Dark <i>Berkeley Systems</i>
25	3	3	Norton Utilities for Macintosh <i>Symantec</i>
30	4	4	SAM <i>Symantec Corporation</i>
20	5	5	Virex <i>Microcom</i>

The AmCoEx Index of Used Macintosh Prices

Machine/RAM/ Hard Drive	Average Sale Price	Monthly Change
Mac Plus/1MB/none	\$300	\$0
Mac Plus/2MB/20MB	\$475	+\$50
Mac SE/2MB/20MB	\$825	-\$25
Mac Portable/1MB/40MB	\$700	-\$50
Mac Classic/2MB/40MB	\$775	+\$25
Mac SE/30/2MB/40MB	\$1700	\$0
Mac LC/2MB/40MB	\$900	-\$25
Mac II/4MB/40MB	\$1650	-\$75
Mac IIsi/3MB/40MB	\$1575	-\$200
Mac IIcx/4MB/80MB	\$2000	-\$400
Mac IIci/4MB/80MB	\$2350	-\$600
Mac IIfx/4MB/80MB	\$3300	-\$500
Apple 12-inch B&W display/board	\$200	-\$25
Apple 13-inch RGB display/board	\$500	-\$75
LaserWriter Plus	\$950	\$0
LaserWriter IINT	\$1600	-\$50

Index provided by the American Computer Exchange of Atlanta, Georgia. It reflects sales during the week of September 18. Configurations include keyboard and exclude monitor and display board for noncompact models.

Source: Exclusive Audits & Surveys research from more than 250 Macintosh retailers and selected mail-order vendors. Covers sales during August 1992.

Mirror Introduces Desktop Performance For Your Powerbook...

With Mirror's exciting new peripherals, your PowerBook can function just like a desktop machine, with a high resolution monitor and plenty of storage.

The **Mirror PowerVision™**, an internal video board for the PowerBook 140, 145, or 170, works with a variety of standard monitors, including our NEW 14-inch Color Display and 15-inch Gray-scale Display. With 0, 2 or 4 MB of on-board RAM, the PowerVision's pass-thru connector lets you use existing RAM, and our installation video

makes setup a snap (professional installation also available).

The **Mirror ViewPort™** is a 15-inch monochrome display with a built-in SCSI video controller and QuickDraw acceleration for performance rivaling internal video boards. Ideal for PowerBooks, the ViewPort brings big screen power to any Mac with a SCSI port. (continued)

The NEW Mirror 14-inch
Color Display
\$399

Mirror PowerDock™
battery powered base
unit and charger.*
\$199

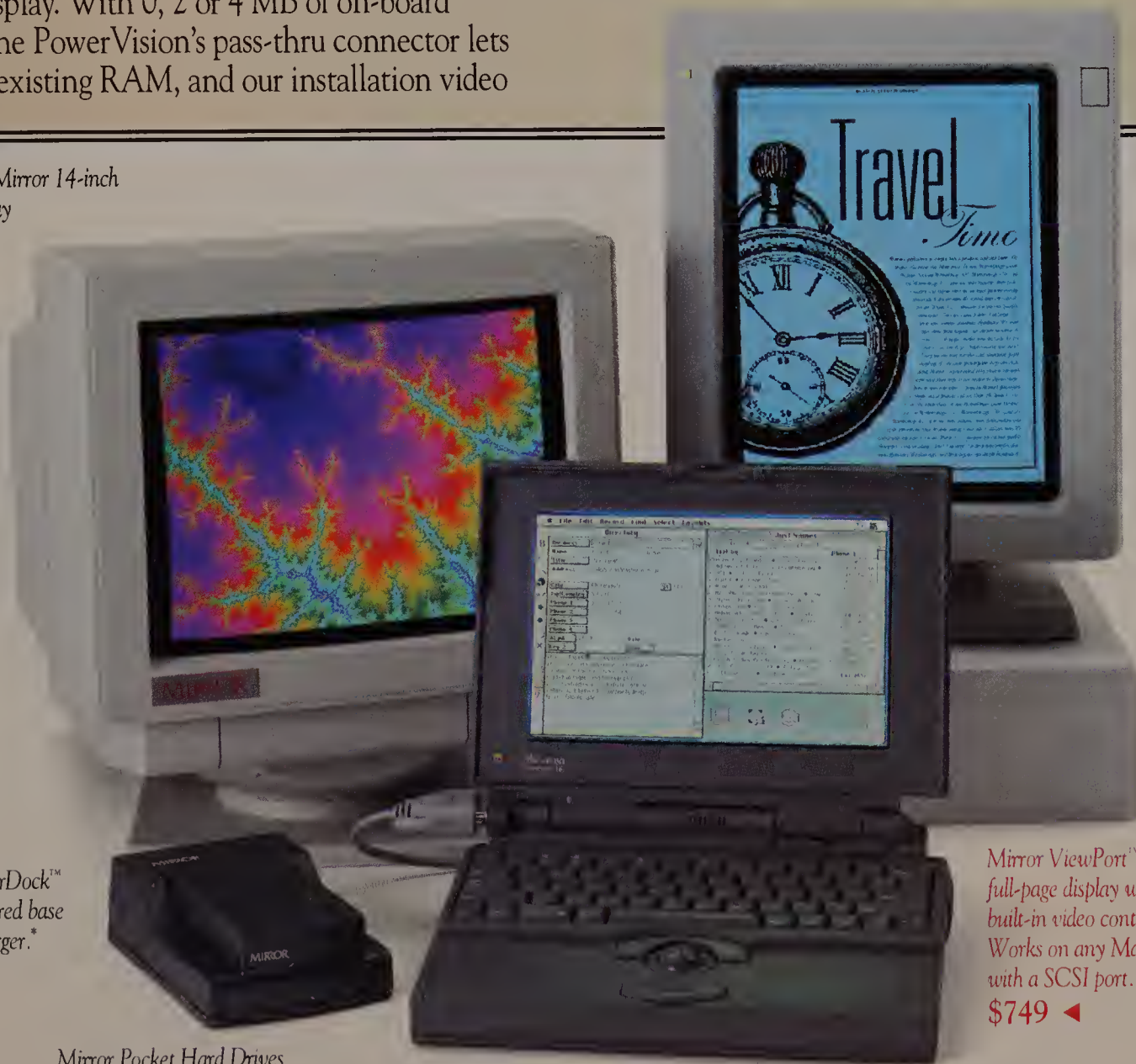
Mirror Pocket Hard Drives
80 MB \$599
120 MB \$699 ◀
Includes SCSI cable for PowerBooks
and standard Macs--a \$100 value!

PowerVision internal video
adapter board includes tools and a
comprehensive installation video.
with 0MB \$499+ ◀
with 4MB \$999+ ◀

Mirror ViewPort™
full-page display with
built-in video controller.
Works on any Mac
with a SCSI port.
\$749 ◀

Systems including PowerVision board and display from \$898+ ◀

*Uses your PowerBook battery and AC adapter. †Call for other options.



...And Powerhouse Perip

The NEW Mirror 14-inch Color Display is the latest version of our best selling color monitor. Designed to work with the built-in video of your Mac LC, IIsi, Ilci, or Quadra--or with Mirror's PowerVision video board for

PowerBooks--this display features razor-sharp focus and brilliant color and it's still only \$399!†

The **Mirror Pocket Hard Drives** and optional

Mirror PowerDock redefine storage convenience. For moving data between machines, or to expand your PowerBook's capacity, these tiny drives fit anywhere. Slip the Pocket Drive into the PowerDock and use a standard PowerBook battery to power the drive while you travel. When you're back home, the PowerDock does double duty and charges your spare battery.

Whatever your need, whatever Macintosh model you use, Mirror has high performance peripherals to match.

Our complete line of storage systems can handle any task. From our critically acclaimed hard drives and CD-ROM, to our high performance 128 MB Optical

Drives	Int.	Ext.
50 MB (Q)	\$299	\$339
85 MB (Q)	\$349	\$399
105 MB (Q)	\$389	\$439 ◀
127 MB (Q)	\$409	\$459 ◀
170 MB (Q)	\$449	\$499 ◀
240 MB (Q)	\$649	\$699 ◀
425 MB (Q)	\$1,049	\$1,099 ◀
595 MB	N/A	\$1,499 ◀
1 GB	N/A	\$1,999
128 MB Optical Drive	\$1,299 ◀	
600 MB Optical Drive	\$2,299	
44 MB SyQuest Drive	\$429 ◀	
88 MB SyQuest Drive	\$549	
DAT Tape Drive	\$1,399	
CD-ROM Drive	\$599	
44 MB Cartridge	3 for \$189	
128 MB Cartridge	\$59	
Quick! JPEG Board	\$599 ◀	

20-inch ProView Trinitron Display, 8-bit \$2,499

w/ 24-bit video card \$2,699 ◀

20-inch ProView V Color Display, 8-bit \$1,799

w/ 24-bit video card \$1,999 ◀

16-inch Trinitron Display \$1,099† ◀

w/ 8-bit video card \$1,499 ◀

w/ 16-bit video card \$1,599 ◀

w/ 24-bit video card \$1,799 ◀

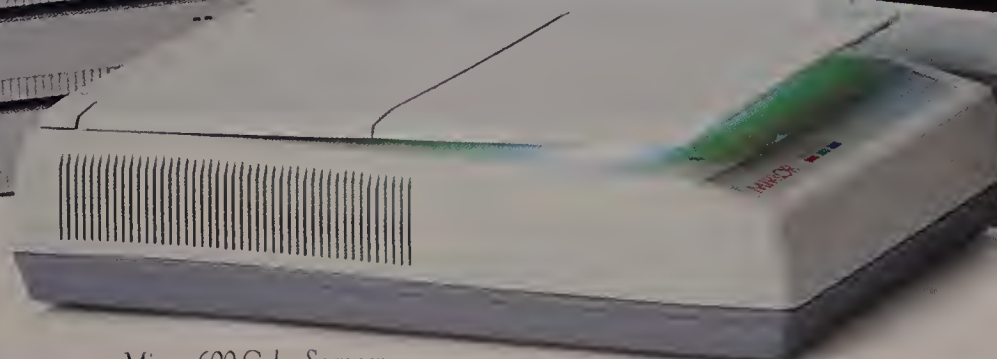
16-inch Color Display \$799† ◀

w/ 8-bit video card \$1,199 ◀

w/ 16-bit video card \$1,299 ◀

w/ 24-bit video card \$1,499 ◀

14-inch Color Display \$399†



◀ NEW
Lower Price!

Mirror 600 Color Scanner,
with Adobe Photoshop \$1,199

Generals For The Desktop.

Drive and DAT Tape Drives, Mirror offers the capacities, speed, features and prices you want.

Once you've used a Mirror high-resolution display, you'll wonder how you ever lived without it. Our monochrome full-page and two-page displays deliver bright, sharp screen images for word processing, spreadsheets, database management and publishing.

For graphic design, illustration or pre-press, choose a Mirror color display. Available in 14-inch, 16-inch and 20-inch models, there's a Mirror color display that's right for every job.

The top-rated Mirror Color Scanner makes it easy

to add sharp, vivid color images to your work at an unbeatable Mirror price; just \$1199 including Adobe Photoshop.

If you need a printer, take a close look at the MirrorImage 309 Laser Printer and the MirrorImage 415 Tabloid Laser Printer. With Postscript Level 2, RISC processors, sophisticated paper handling and durable, high-speed printing engines, these printers work hard, so you don't have to.

All Mirror products are backed by our famous 30-day, "love it or return it" policy*, and the best customer support in the business. Call today to see for yourself.

MIRROR

1 - 8 0 0 - 6 4 3 - 0 6 3 3

ORDER DIRECT

FAX 612-633-3136

MEDIA:1029

MirrorImage 415, Tabloid Laser Printer, features dual paper trays and a 15 pages-per-minute print engine. Leases available.

\$3,199 ◀

19-inch Two-page Display w/ monochrome video card **\$799**
21-inch Two-page Display **\$999[†]**



MirrorImage 309,
Postscript 2 laser printer
\$1,699



15-inch Grayscale Portrait Display **\$399[†]**
w/ monochrome video card **\$549**

©Trinitron is a registered trademark of Sony Corporation. Technical Support Hotline: 1-612-633-2105 Telephone: 1-612-633-4450 FAX: 1-612-633-3136 Address: 2644 Patton Road, Roseville, MN, USA 55113

Circle 125 on reader service card

File

It
won't
hop.

Edit

It won't skip.

Chooser

But wait till you
see it jump.

While the cursor may hop or skip with some trackballs, Turbo Mouse® has always been known for its ultrasmooth movement.

Now, the latest version of Turbo Mouse is known for something else—jumping. Our new Brilliant Cursor technology makes it possible.

With it, you can move the cursor instantly to predefined HotSpots on the screen, such as the File and Edit menus and the Trash icon.

First, you define your HotSpots. Then, click a button and move the ball in the direction you want to go. The cursor automatically jumps to the predefined HotSpot. You can even program in different HotSpots for different applications and for different users.

And Brilliant Cursor technology is not all that's new with Turbo Mouse 4.0. Also new is advanced acceleration with three levels of control and Enhanced Mouse Buttons that let

you execute one of seven programmable commands. For example, send a Print command with just one click using Send String. Or move the cursor with ultra precision using Slow Cursor. Even save different combinations of commands for each of your favorite programs.

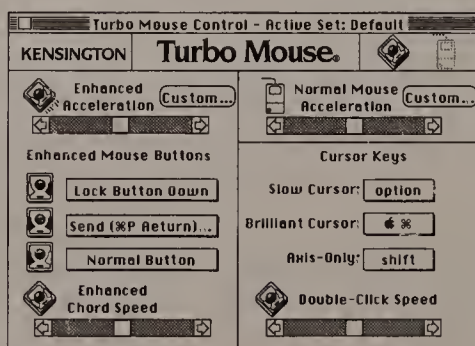
Then there's the award winning Turbo Mouse hardware. Hardware that has won more awards than any other input device. Hardware that has consistently been voted "Best Input Device" by Macintosh

users worldwide. Features include a large comfortable ball, "easy-click" buttons, long-lasting precision stainless steel bearings, and two ADB ports for chaining other devices.

Turbo Mouse 4.0 is fully System 7.0 compatible. To receive information by fax, call 800-535-4242, dial 82 and request document 320. For general information, call 800-535-4242. Outside the US, 415-572-2700.

Introducing Turbo Mouse 4.0

With the all new Brilliant Cursor™ technology,
you can actually make the cursor jump
to any spot on the screen.


KENSINGTON